



BENCHMARKS

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Happy Birthday Macintosh



By Mark Thacker, CWIS Coordinator (thacker@unt.edu)

In this ever evolving world of technology, it's refreshing to look back on significant milestones to get a perspective of where we are and where we might be going. Today, I bring you a living example of a milestone - the Macintosh personal computer. January 1994 marks the Macintosh's 10th birthday, and its time to celebrate one of the unique developments in the computer industry.

So, I now give you a brief synopsis of the history of the Macintosh. It is both amusing and sobering. The most interesting part however, is that the next ten years promise to be just as interesting as the last.

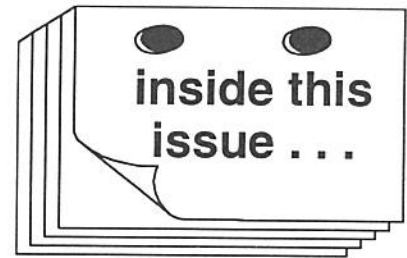
The Early/Teething Years

In late 1983, people began seeing odd commercials on TV, commercials which promised a new kind of computer. One that promised (borrowing from the Orwell novel) 1984 won't be like *Nineteen Eighty-Four*. This computer was the Apple Macintosh. It was the first popular consumer market computer featuring a graphical user interface (GUI). Until then, there had been a few prototype systems, including the Xerox PARC Star and Apple's own Lisa. The Lisa was touted as a "rethinking of what a computer should be." However, it was very expensive for the time (the figure of \$10,000 comes to mind) and was very underpowered. The Lisa later resurfaced as the Mac XL for a brief time (it emulated a weak Mac 512K) then was quietly buried in a virtual silicon grave. So what about the Macintosh thing?

The Mac brought a new attitude toward using a computer, writing programs, and thinking about computing in general. The entire interface and use were based upon the use of a mouse with a single button. To enforce the use of a mouse, the first Mac keyboard did not have function, arrow, or scrolling keys. Gosh, they were serious about this whole point-and-click thing!

The original Mac was also a very compact design, integrating the monitor, disk drive and CPU together into one compact case. The only external cables were the power, keyboard and mouse cables. The monitor was a 9" monochrome that featured an easy-to-read, black-on-white format for documents. The slow decay amber/green monitors commonly used on other machines looked a bit anemic compared to the crisp Macintosh monitor. Truly, this was a computer like no other at the time. However, you can still see the original Mac's design evident in today's Macintosh ColorClassic II and Performa series, Compaq's Presario, and IBM's PS/1 computers.

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Area code 214 must dial 817 before the METRO #, see note to the right.

Note: Dialing 1 before the area code will result in a long-distance charge. Set Data Bits to 7, Parity to S, and Stop Bits to 1. When dialing in, the autobaud feature requires you to hit the <RETURN> key repeatedly after the connection is made so that the receiving modem can determine the baud rate. When you see the prompt (# for local numbers, UNTMODEMS for the metro lines) you can enter one of the following commands to connect with the system of your choice.

ACS Host Systems	Local Phone Lines (# prompt)		METRO LINES (UNTMODEMS prompt)	INTERNET (CUTCP, NCSA)
	SYTEK/HST Lines (3461)	Other lines (3300, 3989) Type SHOWD for list of hosts.		
Academic Mainframe (CMS, Academic COM-LETE)	CALL 3270	CALL VM3270	CONNECT VM3270 or VM3271, VM3272, VM3273	tn3270 vm.acs.unt.edu -OR- telnet vm3270.acs.unt.edu
VAX (VMS)	CALL DEC	CALL DEC	CONNECT DEC	telnet vaxb.acs.unt.edu
Sol (UNIX)	CALL 900	CALL SOL	CONNECT SOL	telnet sol.acs.unt.edu
Jove (UNIX)	Inaccessible	CALL JOVE	CONNECT JOVE	telnet jove.acs.unt.edu
Gopher [dedicated Gopher Server]	Inaccessible	CALL GOPHER	CONNECT GOPHER	telnet gopher.unt.edu
Departmental Systems				
Ponder (Computer Sciences Sequent)	CALL 780	CALL PONDER	CONNECT PONDER	telnet ponder.csci.unt.edu
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To exit from the local phone lines, press <ESCAPE><RETURN>, type DONE (at the # prompt), press <RETURN><RETURN>. To exit from the metro lines, press <CTRL-SHIFT-6>, type DISCONNECT (at the UNTMODEMS prompt), press <RETURN>. Exiting from telnet or TN3270 is dependent upon the package. CUTCP uses <ALT-X>.

HOURS FOR UNIVERSITY OF NORTH TEXAS COMPUTER ACCESS AREAS : Spring 1994

Day of Week	Willis	BA	ISB 110	Chilton 255	Chilton 116	GAB	Matthews	Music	Terrill, Wooten	ISB 205C	ISB I/O Area (138A)	Lab Locations
Monday-Thursday	Open 24 hrs.	8 am-11:45 pm	7:30 am-MN	8 am-10 pm	8 am-10 pm	8 am-MN	7 am-10 pm	8 am-10 pm	8 am-MN	MW: 10 am-8 pm TT: Noon-10 pm	Open 24 hrs.	☉ BA: 330, 332 ☉ Chilton: 255, 116 [Adaptive Lab] ☉ GAB: 330, 550 ☉ ISB: 110, 205C — graduate students only ☉ Matthews: 309 ☉ Music: 1007 ☉ Terrill: 247 ☉ Willis: 134 ☉ Wooten: 120
Friday	Open 24 hrs.	8 am-8 pm	7:30 am-9 pm	8 am-5 pm	8 am-5 pm	8 am-5 pm	8 am-5 pm	8 am-5 pm	8 am-5 pm	1-4 pm	Open 24 hrs.	
Saturday	Open 24 hrs.	8 am-8 pm	9 am-9 pm	10 am-5 pm	10 am-5 pm	2-8 pm	10 am-5 pm	10 am-5 pm	Closed	10 am-5 pm	Open 24 hrs.	
Sunday	Open 24 hrs.	Noon-11:45 pm	1 pm-MN	1-10 pm	1-10 pm	2 pm-MN	1-10 pm	1-10 pm	2-8 pm	1-8 pm	Noon-MN	

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The first Mac also introduced the idea of putting most of the operating system into ROM so that programmers could spend time and space writing their program, not writing the interface to their program. Programmers also had to rethink the way they wrote software for personal computers. Everything was event driven and the program responded to what the user did, not what particular prompt was on the screen. This method of programming is now considered the standard way of producing applications on microcomputers.

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Sales of the Mac were slow at first because of two reasons:

- ① lack of software, and
- ② lack of software.

The price wasn't as much of a factor as one might think. A new 128K Mac cost \$2,495, not bad when compared with the \$4,995 price tag of an IBM PC-XT or the \$5,469 of an IBM PC AT introduced one year later. The Mac had only a single, nonstandard (then) 3.5" disk drive onto which you had to run either your operating system or an application. Because programs took longer to write for the Mac than they did for a character based machine (the IBM-PC), software pickings were slim. Apple introduced the Mac 512K to solve the problem of not enough memory in the original Mac, but that didn't really help. In fact, Apple had a one-year sup-

ply of the Mac 512K by 1986 and had sold their entire supply of 3.5" disk drives back to Sony because of lack of interest.

However, companies like Lotus, Microsoft and Software Applications eventually brought out software for the Mac. With a whopping 400K of disk storage on the single drive, it was a wonder that programs like Microsoft Word and Excel could run at all. However, programmers hacked on the code, lived with the fact that the first Macs couldn't boot from a hard drive, even if you did hook it to the modem port as required. Programmers also had to write programs for the Motorola 68000 microprocessor differently than for the 8088 and 8086 used in the IBM-PC systems.

As software support rose and people realized that this unusually designed machine could be useful as more than just a toy, the Mac community began to grow. The introduction of the Macintosh Plus addressed many problems of the earlier Macs. It included one whole megabyte of RAM. What an ocean of memory! It also finally introduced the Small Computer Systems Interface (SCSI) for connecting a hard drive. This interface is also considered a standard for microcomputers now.

One other development was so basic that I almost forgot it. The Mac intro-

duced the first consumer based What-You-See-Is-What-You-Get (WYSIWYG) interface to printing. Now, when you saw a 10 point *italic* Times Roman character on your screen, you could be assured that the printed version would be the same size and be on the same place on paper as it was on screen. Mac, Windows and OS/2 users take this for granted now, but it's hard to remember that the average computer did not have WYSIWYG capabilities in 1984, and some still do not! Looking back on these early Macs, it is interesting that the Apple could be on both the leading and trailing edge of technology at the same time!

The Mac Grows Up

In 1987, Apple released the Mac SE and II to establish a new line of performance and minimum requirements for future Macintosh computers. The Mac II in particular was the first to use the 68020, open slots for future expansion and a choice of monitors. It was an absolute powerhouse for the Mac line. IBM-PC makers however were talking about and using the brand new Intel 80386 chip, which was more powerful in terms of processing power. The Mac began playing a game of cat and mouse with Intel based machines.

The expansion capabilities of the Mac came with quite a few goodies. The SE contained an expansion slot that surfaced later as "processor direct slots" (PDS) in other Macs. Note that Intel-based machines are just now appearing with something called "local bus," which effectively is like the PDS on Macs. The NuBus expansion capability is carried on to this day, where you plug an expansion board into your machine without having to configure a single DIP switch, jumper, or worry about memory addresses. IBM does this with Microchannel, which shipped two to three years after NuBus appeared on the Mac II.

Color was also introduced with the Mac II. The Mac was capable of 256

More importantly than just the revolutions in the capability of the CPU, the Apple LaserWriter was introduced in 1985. For the first time, the words "PostScript laser printer" and "scalable typeface" became part of the standard vocabulary of Macintosh users.

colors out of a palette of 16.8 million. This was much better than most machines of its time. As people began to use the Mac for photo work, the demand for greater capability in color display grew. Apple finally decided upon a standard way of doing 32-bit color and began encoding it for the Macintosh ROMs shortly after that. Most modern Macs can display thousands or millions of colors by simply adding more video memory to the built-in display card.

More importantly than just the revolutions in the capability of the CPU, the Apple LaserWriter was introduced in 1985. For the first time, the words "PostScript laser printer" and "scalable typeface" became part of the standard vocabulary of Macintosh users. Many people realized that they could now produce their own newsletters and not have to worry about jagged fonts or multiple point sizes of fonts installed in their computer. Adobe Systems owes much of their success to the success of the Apple LaserWriter and the shift in perception of what was possible for publishing with a desktop computer.

With the LaserWriter came one other item, AppleTalk networking. Macintosh users could use simple phone cable connectors (called PhoneNet) to wire their own network between Macs and LaserWriters. With the recent deregulation of the phone company, it became legal for consumers to wire their own house for phone based networks. So, Apple now had computers that were truly network aware right out of the box.

Sound capabilities were also included and expanded on slowly during this time. The Mac II featured the Apple Stereo Sound Chip. At 8 bit, 22KHz resolution, it wasn't exactly CD quality, but a heck of a lot better than the simple "beep" that was typical of other machines. It wasn't too long before people began sampling all sorts of sounds to play on the Mac. Even back in 1987, you would often hear Macintosh computers in campus labs laughing, screaming or quoting a line from your favorite movie.

One of the most important recent developments in the Macintosh was the introduction of System 7, which shipped in 1991. This operating system finally made the Mac a true workstation-like computer and allowed Apple to take advantage of modular system extensions.

The Modern Mac

One of the most important recent developments in the Macintosh was the introduction of System 7, which shipped in 1991. This operating system finally made the Mac a true workstation-like computer and allowed Apple to take advantage of modular system extensions. Let's say that you wanted to add a new way of operating your computer, perhaps speaker-independent voice recognition. Don't rewrite the whole operating system, simply include an extension that makes new capabilities available to almost all existing applications. It also allows you to distribute the

modifications to only those users who need it.

System 7 also included several other technologies that are just now beginning to make their rounds to other computer systems. Cooperative multitasking was not really new to the Mac, but was much refined, allowing a user to run multiple programs at once and cut & paste and even send certain messages among them. TrueType font technology allowed variable-sized WYSIWYG fonts on non-PostScript printers (side note: Apple also licensed this technology to Microsoft for use in Windows — so you can exchange TrueType fonts between Windows and Macintosh machines). Built-in file sharing means that an organization interested primarily in sharing files or E-mail need not purchase a file server. The system can share files with other Macintoshes very easily.

Apple has also adopted a flexible design philosophy that allows them to manufacture similar motherboards and cases that are upgradeable for future use. Previously, all Macs up to the IIx had essentially been designed from scratch every time. The modular nature of the operating system also allows Apple to modify designs and just ship a new extension to make the hardware usable. In fact, in 1993, Apple shipped over seven different machines all based upon the 68040 CPU alone! This doesn't even include the other models of Macintosh.

Systems are also faster now. The standard processor in the Macintosh line is quickly becoming the 68040, a chip

Essentially, Apple and IBM have agreed that their future lies with the PowerPC processor. It has the advantage that it is a brand new chip that is more powerful than Intel's Pentium (whose technology is really at the end of its lifetime).

comparable to Intel's 486 series. The original Mac ran a 68000 CPU at 8 MHz; the fastest production Mac now runs a 68040 at 40 MHz. With all of this extra speed come extra capabilities such as color processing, digital video, and better sound capabilities. The built-in networking capability of the Mac is now high-speed Ethernet rather than slower LocalTalk.

Speaking of new capabilities, the Mac that I am writing this on, a Macintosh Quadra 660AV, has the following built-in: speaker-independent (no training) voice recognition, digital audio (16 bit, 44.8 KHz - better than CD quality) input and output, S-video and regular NTSC video input and output (dump your presentation directly to video tape on the Mac), Ethernet networking, CD-ROM with playthrough to speakers without any CPU time used, high density 1.44MB disk drive, file sharing, 32,000 color display capability, 8 MB of RAM (expandable to 68MB), 230MB hard drive, an AT&T 32-bit Digital Signal Processor, capability to act as a telephone/answering machine/fax modem, and a 25MHz 68040 processor. (For additional information on this computer, see the article on page 6 of this issue of *Benchmarks*.)

Compatibility with DOS based machines is also quite common through file translation software and through DOS emulators. This article was written using WordPerfect for Macintosh which can save files in WordPerfect 5.1 DOS format, for example. For those wanting to run DOS software on their Mac, you can either purchase a coprocessor board that fits into your Mac and acts as a DOS machine, or you can run

emulation software (SoftPC from Insignia Solutions) that allows your Mac to run DOS/MS-Windows software in a window on your Macintosh. (For additional information, see the article on page 10 of this issue of *Benchmarks*.)

The New Genesis of the Mac

Where is the Mac headed? In 1991 Apple asked this question and came up with a unique solution: PowerPC. Apple signed a deal with IBM and Motorola to manufacture and market a new CPU designed from the IBM RS/6000 chips to be known as PowerPC. This new chip is totally different from the modern Motorola 680x0 chip: it uses a different instruction set or language; it is RISC based; it runs at a different speed; it requires a totally different motherboard; and the Macintosh operating system must be translated to work on it.

Essentially, Apple and IBM have agreed that their future lies with the PowerPC processor. It has the advantage that it is a brand new chip that is more powerful than Intel's Pentium (whose technology is really at the end of its lifetime). There are already two additional models of the PowerPC chip planned (the first is the 601, followed by the 604, and the 610). A variety of major vendors support the chip, including Apple, IBM, Sun, Cray Supercomputers, WordPerfect, Microsoft and others.

Beginning sometime in April, Apple will ship its first PowerPC-based Macintoshes. Eventually, PowerPC will allow you to run Macintosh, Unix,

OS/2, MS-DOS and MS-Windows NT all on the same machine (in some cases, at the same time in multiple windows). Apple will ship a version of System 7 for use with the PowerPC that will allow modern programs to run unchanged on the new systems. The PowerPC runs so quickly that it will actually emulate a Motorola 680LC40 in software!

The future of the Mac is bright indeed. There is so much information about the PowerPC that it could fill a book. In fact, you can call Motorola at 1-800-845-MOTO for more general information about the PowerPC. Apple has announced upgrade paths for some existing Macintosh users and promises third-party upgrades for others. Call Apple at 1-800-732-3131, ext. 150 for additional PowerPC Macintosh information.

For now, it is safe to say that the Apple Macintosh has had a very interesting 10-year history and that it promises to be just as interesting over the next 10 years. When the original Mac was introduced, no one really thought that we would be directing our computers to do things with voice command (and that they would talk back to us), playing CDs in the background and making movies, not in 10 years at least. Who knows what we will do in the next 10 years as we move to even faster processors and the Macintosh picks up more capabilities. Heck, you will probably be listening to this article being read to you by some hand-held wireless system while you compose (using voice or pen and maybe a keyboard) your commentary on the 20th birthday of the Mac. Please be kind when commenting about how shortsighted those of us in the 90's were!

Reference

Groman, Galen and Jim Heid,
"Macintosh," *MACWORLD*
(February 1994, p. 86) ■

Confessions of a Former Mac Hater

How the AV Converted Me From a Casual User to an Addict

By Eriq Neale, ACS General Access Lab Manager
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I can sum up my opinion of the new Macintosh AV technologies in one word: cool. This is not your average, everyday 'cool' though. It's one of those long drawn-out, very emphatic and emotional utterances of the word. A more appropriate spelling might be 'Cooooooooooooooooooollllllll.....' And it would have to be followed with a meaningful smile. Cool. Yes indeedy.

Now that I've shared this professional, high-tech opinion with you, let me tell you how I arrived at it. I've been working with the AV technologies on my desk for about two months now. There was an incredibly high 'Wow-factor' upon opening the box, and I admit that I basically showed off for the next several days. I was amazed at all the stuff that the machine could do, and I hope that my impromptu audience was equally impressed. If not, they did an excellent job of acting. Soon, though, the newness wore off, and I was back to business as usual. Except that, in some cases, work life became a little more interesting.

The AV Product Line

The AV-based Macintosh models are two of the latest model rollouts from Apple. Named the Quadra 660AV and the Quadra 840AV, these computers are designed on the same technologies as the other Quadra units. Both run on the Motorola 68040 CPU (25MHz and 40MHz, respectively), both sport the built-in FPU, both have built-in Ethernet and video, and both come with high-density floppy disk drives and can have optional CD-ROM drives installed. In just about every respect, these units are equivalent to other Quadra units, with the 840AV having the fastest CPU of any Macintosh ever.

What separates these Macintoshes from any other Mac ever made is the addition of an AT&T DSP chip and a new video and graphics architecture. The video subsystem allows for input and output of SVHS or composite video (NTSC, SECAM, and PAL formats for the techies). The DSP (digital signal processor) allows the AVs to process 16-bit, CD-quality audio both in and out of the computer. The DSP also can be used for telephony and data communications, emulating a 14.4k baud error-correcting modem in software. The understated crowning achievement of the hardware is that it now can interpret real-time speaker-independent voice commands through the DSP and some very elaborate software.

The one item that makes these machines very attractive, however, is the small price difference between an AV-equipped Macintosh and a "regular" Macintosh. For example, a Quadra 660AV is roughly a couple of hundred dollars less than a similarly equipped Quadra 650. And the Quadra 840AV is only a few hundred dollars more than a similarly equipped Quadra 800. So where Apple could easily have inflated the price on these units without difficulty, they chose to keep the cost competitive with the remaining product line, the goal being to get this technology into the hands of those who might not have had it before. Like myself, for instance.

The Practicality of AV Technologies

As I mentioned earlier, the first few days I had my AV I spent mostly exploring the new capabilities of the machine. But as I got back into my working routine, it didn't appear that the features would be all that useful. Voice recognition is nice, but is it really effective or useful enough for daily use? How often am I going to be digitizing digital audio? Since I don't have a VCR or TV with cable in my office, how can I watch TV in the background, and am I going to be digitizing video that frequently? My immediate answer to all of these questions was negative. I didn't know at the time how the new functionality could work into my daily routine. I came to learn that dealing with this technology had a completely different kind of learning curve.

Admittedly, I'm writing this article from the experienced side of the coin now, and I've learned quite a bit about how the technology can be used. In fact, as I sit here typing away, I have a CD playing in the background from the internal CD-ROM drive. This is something that could be done before, but not in 16-bit stereo at 44.1kHz, which is CD sampling frequency. Anyway, I've found that in at least two cases with this computer, more is better. I refer to both internal memory and hard disk space in this statement. As I see it, to really take advantage of more than one aspect of the AV technologies simultaneously, a minimum of 16MB of RAM is necessary. All the features can be used with less, but they'll be used one at a time. Disk space is also a valuable commodity when digitizing audio or video, as files created when doing this will generally be in the tens to hundreds of megabytes in size. A 230MB drive is a minimum, 500MB is better, and 1GB or more is even better. An ideal configuration would be to have a 500MB internal drive and a 1GB or larger external drive. But, of course, not that many of us can go down to Joe's Computer Store

and walk out with a high-capacity drive when the mood strikes.

Before continuing with my description of the different aspects of the AV technology suite, let me say that the AV is not for everyone. Every new Mac shipping today will play back stereo audio and digital video in the form of QuickTime movies. This functionality is present in the system hardware (audio) and software (video). If your interests lie in viewing multimedia applications or taking existing multimedia pieces and putting them together into a production, then you don't need the extra hardware on the AVs. I'd suggest, in fact, that you take the savings of purchasing a lesser machine and put it into disk drive space or extra memory. But, if you want to generate multimedia as the elemental level by digitizing your own audio clips or capturing video or animations to disk, then the AV is an indispensable tool for you.

AV Audio

We'll begin our look into AV technologies with the enhanced audio capabilities. Since the introduction of the MacII, all Macintosh computers have been able to play back 8-bit stereo audio at 8, 11, and 22kHz. You had to attach a set of headphones or external speakers to hear the stereo, but it was there. Several companies developed third-party solutions for capturing audio in stereo to the Mac, and in a few cases these add-on cards could digitize at frequencies higher than 22kHz, but very few claimed to give full CD-quality 44.1kHz sampling.

The addition of the AT&T DSP to the AV Macs allows the computer to digitize and play back 16-bit audio clips in stereo from 8kHz to 48kHz, a higher sampling rate than CD. Headphones or external speakers are still needed to hear the stereo playback in full, but the AudioVisual monitor can be connected to the AV Mac to play stereo audio back through its built-in Bose speakers (and let me tell you, the audio quality of those little speakers is in-

credible!) Digitizing stereo audio is as simple as plugging a stereo input into the microphone jack on the back of the Mac and pressing the record button. Under System 7 (System 7.1 comes shipped on the AV Macs), samples can be saved into system sound files, playable on any System 7 Macintosh, although some audio quality will be lost playing back a sound file on a non-AV Mac.

High-quality audio sampling is expensive in terms of disk space. At the highest-quality input setting, 16-bit stereo at 48kHz, 4 bytes are written to disk 48,000 times per second. That translates to about 190KB/second. For a three minute sound file, that equates to about 33MB on disk. Even though some audio enthusiasts insist that you can hear a difference in quality between a 48kHz sample and a 44.1kHz sample, many others will say the difference is indistinguishable. Even dropping down to 44.1kHz sampling, the same three minute audio file drops in size to around 30MB. A 22kHz sampling drops to 15MB, and an 11kHz sampling drops to 7.5MB. Dropping the recording quality to mono or 8-bit would halve each of these predicted sizes. The point here though is that we're a long way away from being able to copy our favorite CD onto a 1.4MB floppy disk to play back on another computer.

AV Video

Capturing and digitizing video has become a popular activity, either for getting information for a multimedia presentation, or just for sharing clips from your favorite TV shows with friends (the latter activity violates copyright laws and is generally frowned upon). Video capturing boards such as the Video Spigot and Video Vision, from SuperMac and Radius respectively, have allowed Mac video junkies to digitize video into QuickTime movies for a couple of years. These add-on cards tend to be rather expensive, though, and have generally been available only to true enthusiasts or the truly wealthy.

Some of these solutions were combined with video accelerators so any video captured using them was replayable only on similar systems. Performance quality vanished completely if a movie was played back on a "regular" system.

The video subsystem on the AV Macs handily tackles this issue and another important one, displaying Mac video on an external monitor, like a TV. There are four video ports on the back of the AV Macintosh: an RCA composite video in, an RCA composite video out, an SVHS in, and an SVHS out. The AV Macs have an app called FusionRecorder installed on the disk. This app, part of the VideoFusion QuickTime editing suite, allows you to capture video from the composite or SVHS input jack to a QuickTime movie. You can capture video at 160x120 pixels, 320x240 pixels, or 640x480 (full-screen resolution). Other video capturing applications may allow you to capture video at different resolutions, such as Passport Producer Pro that can capture at any custom resolution.

The "better is more" caveat applies here also. Each frame of a 160x120 video clip digitized in 8-bit color, minus audio, occupies 18.75K of space uncompressed. At 15 frames per second, each second of video occupies 281.25K of disk space. The larger resolutions and larger bit-depth captures get increasingly larger. To take the same image in 24-bit color format, each frame will occupy 56.25K of disk uncompressed, while a second of video, captured at 15 frames per second, will occupy 843.75K of disk space. So, to capture full-screen images at full-motion speeds (30 frames per second) in 8-bit color, you would need 8.79MB of disk space for each second of video, or 300K per frame. Needless to say, without some form of image compression, full-screen full-motion digitizing is not yet possible even on the Quadra 840AV.

QuickTime does have several compression algorithms available for digitizing and playing back video clips. In fact,

I have a completely different world of opportunity at my fingertips. Training applications and tests or quizzes can be easily created with audio and video components. Fax and data communication are simplified and quicker on the computer. And voice recognition is not only really cool and mostly useful, but it has the most growth potential for the entire computer industry of any new technology.

QuickTime does not work with raw video. Every video clip digitized for QuickTime is compressed, even minimally. The compression algorithms offer a variety of compression ratios, but each has a price to pay. Generally, the higher the compression ratio, the poorer the video quality. Apple's highest-compression algorithm, called "Cinepak," compressed a two-minute video clip I digitized in 16-bit color from over 200MB to under 8MB of disk space. The quality of the final clip was usable and, given the relative newness of video clips in local presentations, still had a high "wow factor." The tradeoff? It took over 90 minutes to compress the clip. Of the four clips I digitized for this presentation, most were compressed right after I left work, during my lunch break, or while I was off at meetings. It's possible to do other work on your Mac while compressing in the background, but neither process benefits from doing so.

One does not have to digitize video to take advantage of the video technologies in the AV, however. The AV Macs ship with Video Monitor, an app that displays a video signal from either the composite or SVHS input on the monitor at QuickTime window sizes (160x120, 320x240, or 640x480). This is handy for viewing video promotions, training videos, or "The Simpsons" (the latter being done off the clock or behind closed office doors, also not highly recommended). Video Monitor can also "grab" a frame of video to the clipboard for inclusion in another pro-

gram. This is highly useful for taking "video snapshots" of people or other objects for a variety of uses. You can simply connect a camcorder to the video input while running Video Monitor and grab whatever the camera sees to the clipboard.

Video conferencing is not only popular in business and education these days, but also relatively easy to do with the AVs. A video conferencing program called ESoF2F ships on the AV that, when connected to a camcorder or other camera input, allows point-to-point video conferencing between Macs connected via Ethernet. This program only transmits video, not audio, and Ethernet is recommended because of the vast amount of video data being pumped across the network. We have tested this minimally across an Ethernet connection and saw fairly good throughput. I'd rather not think about what might happen across a basic AppleTalk connection. This demo application is upgradable to the full version that also handles video "whiteboarding," passing the Macintosh screen data as well as the video across the wire. How is audio handled in the full version? Same as the demo: pick up the phone.

And last, but not least, on our video tour, is the ability to direct the screen display to a TV monitor instead of a Macintosh or other compatible monitor. For years many third party solutions have been available that redirect the video output to a TV signal for display on a TV monitor, or even to

capture to videotape. This can now be done internally by telling the Monitors Control Panel to send the output to an external video source and connecting either a video monitor or VCR to the composite output of the Mac. This is useful for taping the screen activity for use in another type of production (such as a training video) or for demonstrating use in a training classroom where an LCD overhead display may not be available. The downside to this method is that the upper and lower portions of the screen are lost due to television's overscanning the video signal for display. Essentially, you lose the screen space of the upper menu from the upper and lower portions of the display. This can be somewhat annoying, especially when trying to demonstrate some use of the menu. In this arena, the third party video conversion solutions have an edge over the built in video. The use of an external monitor from the Mac disables the computer monitor, whereas other products display both images simultaneously. But, if your use will be mainly for presentations using slide shows (such as from PowerPoint or Persuasion), the internal video output is more than sufficient.

AV Telephony

Another aspect of the DSP chip on the AV that I've been using frequently is the telephony capabilities. Through software, the DSP chip can emulate a 14.4kbps error-correcting fax modem. The GeoPort connects the DSP to the outside world through a variety of means, including standard telephone, ISDN, and others. Currently, only the telephone adapter is available, but others will arrive in the near future. The telecom adapter connects a standard RJ11 phone line to your Mac, enabling the use of the fax modem. The GeoPort extensions make the telecom adapter look like an Apple Express Modem. I use ZTerm to connect to our local 14.4 error-correcting dialups, AppleLink to get information from Apple directly, and America Online for entertainment. I've sent and received faxes on campus

and across the country. I've even used AppleTalk Remote Access to dial into my Mac from a PowerBook out of town to read mail and copy files back and forth. All without purchasing a modem.

Another app that ships with the AV is ApplePhone. When used with a GeoPort and a microphone, ApplePhone turns your Macintosh into a speaker phone. This may seem quite toyish at first, but is useful for those of us who get cramps holding the phone with our shoulders while continuing to type at our keyboards. ApplePhone also has a built-in answering machine that will answer the phone after four rings, play an outgoing message, and digitize an incoming message for later retrieval. This application is basic in its functionality, but really shows the potential of the telephony applications to come. It's now possible to create a program that would allow your Mac to operate like one of those common (and oh, so annoying) voice mail systems that would direct your call ("To speak with someone in sales, please press '1'"), take a message for a particular person ("Hi, this is Bob..."), and play back recorded messages over the phone line ("Press '3' to hear your messages"). There are now also headset devices that combine a microphone and earphone in a single unit for use with the AV Macs. It's a dream device for shoulder cramp sufferers everywhere.

AV Voice Recognition

As I mentioned earlier, the voice recognition of the AV didn't really strike me as very practical when I first experimented with it. Sure, I could get it to select menu options from any application I had open. Sure, I could get it to select standard dialog box buttons. Sure, I could get it to shut off my Mac when I was done for the day (like I ever really turn it off, anyway). But except for a few bells and whistles, it didn't seem to be all that useful. That's when I discovered the speech macros.

The Speech Macro Editor shipped with the AV is one of the workhorses behind the smoke and mirrors of speech technology. The speech macro library that comes with the AV will have your computer tell you what time it is, what day it is, and will even greet you pleasantly. This discovery led to a large number of speech response macros. For example, the computer's response to "Computer, location of Commander Riker" is "Commander Riker is not on board the Enterprise." Similarly, "Computer, when is Eriq's birthday?" results in "Eriq's birthday is January 4th." The wonderful part to this is that your AV could quickly become your dummy partner in a stand-up routine. Hopefully, the computer will have more important uses than that.

Still, though, this was all bells and whistles. There wasn't really anything substantially useful that voice recognition could do. So, for a couple of months, "Computer" didn't listen to me (I turned it off). Then, when poking around in the Speech Macro Editor (while researching this article), I discovered that the speech macros were actually scripts, and they could be based on AppleScript or QuickKeys scripts. This discovery led to two solid days of playing around with the QuickKeys Test Drive (that comes shipped on the AV) and the QuickKeys scripting. After several failed attempts, I came up with some QuickKeys scripts that were actually useful. My personal favorite, and one that I still use frequently, is a voice command that sets the color depth on my monitor. Some programs don't like to run in a video setting higher than 256 colors, so I have a voice macro that set the monitor to 256 colors and then runs the application. It sure beats opening the Control Panels folder, opening the Monitors control panel, setting the video to 256 colors, closing the Monitors window and the Control Panels folder, finding the application on disk, and running it.

I soon discovered the Script Editor application that comes on the AV which

builds AppleScript or QuickKeys scripts and can save them as "executable" icons on the Mac. The script editor is nice because it will check syntax on all scripts before running them, and because it can save the scripts as stand-alone icons. It's then possible to create a script that can be run under a speech macro or just by double-clicking the icon without speech even running. Through the Script Editor I was able to begin looking into AppleScript a little deeper and created a number of scripts for use both with and without speech. The nice thing is that there's only one script, and I reference it in the speech macro. I finally even found a way to get the speech macro to open my AOCE mailbox. (I won't tell you how that was done. If you want to know, you'll have to ask.) The end result is that I'm now leaving voice recognition turned on most of the time and am making use of it in my day-to-day operations, thanks mainly to the scripting extensions. And I use it to help me remember important birthdays and anniversaries. ("Computer, when is Anna's birthday?")

AV Roundup

I guess the final question comes to this. Could I live my life without an AV Macintosh? The answer is a definite 'yes.' I'm not necessarily any more productive doing what I normally do daily, although the voice recognition has shaved some processing time off repetitive tasks. With the AV technologies, however, I have a completely different world of opportunity at my fingertips. Training applications and tests or quizzes can be easily created with audio and video components. Fax and data communication are simplified and quicker on the computer. And voice recognition is not only really cool and mostly useful, but it has the most growth potential for the entire computer industry of any new technology. All in all, the AV technologies are very impressive and affordable, and I hope the industry realizes the capabilities and future opportunities they offer. And you, my friend, should go out and test drive one. ■

Everybody's Doing It — Mac in a DOS World

By Sean McMains, Microcomputer Consultant (mcmains@unt.edu)

You want a new computer. You've decided that the Macintosh is the machine on which you work the best, so you tell your boss that's what you need. You explain that the graphic user interface is very polished and that it helps to minimize the learning curve for new applications, allowing you to spend less time digging in manuals and more at work. You tell him about the built-in multimedia features. Everything is going along smoothly until the boss asks the dreaded question: "Is it DOS compatible?" You hem and haw for a few moments, look down at your shoes, and finally look him in the eye and say "Why, yes. Yes it is."

When the Macintosh was first introduced, it was perceived as a toy computer. Not only did it have little pictures and cute graphics that were out of place on "serious" computers, but it didn't work with anything else on the market. As the PC Compatible market boomed and the Mac line became more capable and powerful, this rift was widened by Apple's continued determination to keep their system software in-house and unable to be reproduced by anyone. As a result, no one was able to develop clones of the Macintosh in the same way that had been done for the IBM machines, and the gulf between the two platforms remained unbridged.

Macintosh and DOS Compatibility

This is what we in the computer industry like to call a "third party opportunity." Seeing that there might be quite a

demand for machines that could handle DOS software as well as Macintosh software, several companies developed products that would allow one to do just that. The two biggest players in this arena up until recently have been Orange Micro and Insignia solutions.

These two companies have developed different approaches to running DOS software on a Macintosh. Orange Micro's solution uses a coprocessor, while Insignia uses something called "software emulation." Each of these technologies has its advantages and disadvantages, and might be used for different applications.

Basically what Orange Micro has done is to have designed a board that is essentially a PC-compatible computer on a card that sits inside the Mac and runs the DOS software while the Mac's CPU continues to take care of Mac software. The advantage to this arrangement is that it essentially provides the user with two complete computers in one box, allowing one to run different kinds of programs simultaneously and without one environment affecting the performance of the other. When performance is of primary importance, this makes for an excellent solution.

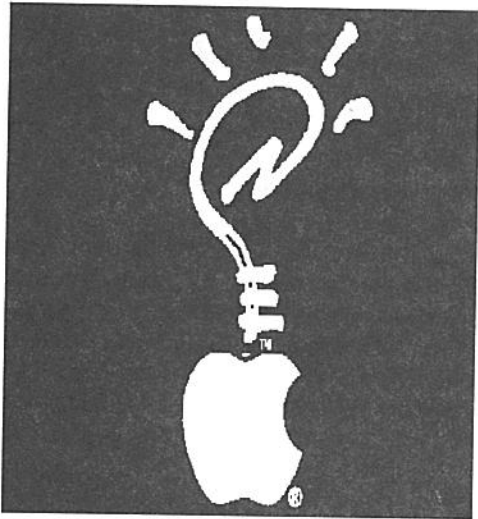
Insignia has taken a very different route with their product. They have basically written a program to pretend that it's a DOS machine, and to fool the DOS software into believing it as well. The advantage of this approach is that Insignia's software can tell DOS programs anything it wants about the machine configuration, and as long as it provides the necessary illusion, everything will work fine. The practical result of this is that one can use the Macintosh's mouse, serial ports, networking capabilities, etc., and all seem to the DOS program to be exactly what it would expect. This approach is also much cheaper than the coprocessor approach, as there's no extra hardware to pay for.

The Apple Solution

Recently, Apple has made this market a bit more interesting by introducing a product of their own, the Quadra 610 DOS compatible. This is a Macintosh Quadra with a built-in coprocessor to allow it to run both DOS and Macintosh software. It is somewhat less capable than Orange Micro's solution, but for the \$500 over what a Quadra would normally cost, it's hard to argue with the price.

One of the most exciting developments in this area that will occur soon is the introduction of the PowerPC based Macintosh. Up to now, all Macintoshes have run on the 68000 series of microprocessors. In April, Apple will begin migrating the Macintosh line over to a new kind of processor, called the PowerPC, which promises to provide performance increases of 200%-400% over the current chips. In addition, work is well underway that will allow these machines to run many different operating systems, including DOS, Macintosh, Windows NT, UNIX, and others, resulting in one box that will run just about any software that's out there. The PowerPC Macintoshes will use software emulation to do their magic, but since their chips are so much faster than the existing ones, they should be able to provide performance comparable to the older processors when running code designed for them. Of course, code written specifically for the PowerPC will race past that which has to run in emulation mode.

Though historically the worlds of DOS and Mac have been entirely separate, the major vendors have finally begun to acknowledge that most environments are not solely Macintosh or solely PCs, but a combination of the two. This has opened the door to an unprecedented degree of interoperability between the two platforms, and has finally allowed us to have our Mac and PC as well. ■



Newton Envy

By Sean McMains, Microcomputer Consultant (mcmains@unt.edu)

Apple's Newton MessagePad has been one of the most hyped, most expected, most raved about, most maligned, most publicized, most criticized piece of personal electronics to hit the market in a long time. You've probably seen the commercials, which are long on flash and short on substance, and may have

even seen Saturday Night Live's parody of the Newton in the form of their "McIntosh Post-It Notes" commercial. (Versatile. Intelligent. Sticky.) Even Gary Trudeau has gotten into the act, with a lengthy series of Doonesbury comics poking fun at its abilities.

So what is this little device? What does it do? And why the furor surrounding it?

"What is it?" That's a harder question than one might expect to answer, as the Newton has defined a new class of product: a "Personal Digital Assistant," or PDA for short. (The other product that falls squarely in this category is the Tandy Zoomer.) PDAs are not as capable as a full-featured laptop computer in some respects, but they outshine the general purpose machines in other areas. PDAs are optimized to help an individual to keep track of the myriad little pieces of information that she gathers, including names and addresses, appointments, notes, sketches, to do lists, etc. They generally cost right around \$700 - significantly more than a Wizard-style product, but much less than a full-featured laptop computer, such as the ThinkPad, PowerBook, or EO (a pen-based computer from AT&T).

So why the extra \$400 again over the top of the line Wizard organizers? PDAs are a far more general-purpose kind of device than are the lower-cost organizers. The Newton can not only keep track of the previously mentioned information, but can also send and receive electronic mail over the Internet, can send faxes, can reformat any of your notes and print them on 8.5x11 paper using nearly any PostScript Laser Printer, can receive alphanumeric messages over a pager network, and can exchange information easily with other Newtons using an infrared link that only requires you to point the units at each other. Additionally, the Newton can store more software in RAM, so that you can add functionality to the machine in the same way that you would a computer — just load up a new program.

In addition to all the built-in functionality, there are all kinds of software packages currently under development for the device. Fodor has already released a Newton-based guide to various cities in the United States, so that while traveling, one could ask the Newton if there were any five-star Chinese food restaurants within walking distance of one's hotel, and it would respond with a phone number so you can make reservations and directions from your hotel. There's a program that provides a map of the Washington DC subway system, along with all of the stations names and which

lines stop there. Medical students have developed software to allow them to access information quickly and easily about the interactions of various drugs. Terminal emulation software is close to release as well, which will allow the Newton to dial into Compuserve, local bulletin board systems, or even UNT's host systems. Finally, spreadsheet and database applications are already released or will be shortly.

Much of the commotion that has surrounded the Newton centers around some of its unique capabilities. Since the unit is too small to include a regular keyboard, Apple developed some excellent handwriting recognition software that would allow a user to write in print or cursive on the unit and have that writing converted into text that the unit can understand. Unfortunately, the moment that many individuals heard "handwriting recognition," they expected perfection, which Apple has decidedly not delivered. Newton's handwriting recognition is excellent — by far the best that I've ever had the pleasure to work with — but is not infallible. For one thing, it does require a day or two of training with your particular handwriting style before it will do very well. Many people also assumed that they would be able to write just like they always do, which is not the case. It takes a bit of time to get used to what the Newton expects to see in one's writing, just as it takes time to learn how to type. Learning how to use writing effectively on a Newton is certainly a much faster process than learning how to type, but it is not instantaneous as many expected it would be.

Answering the Charges

Another charge leveled at the emerging class of device is that they're just too expensive. This is true if one is thinking of them only as the equivalent of an electronic Rolodex. However, the additional communication functionality as well as the ability to load and use many other kinds of software as well provide

these units with a far broader range of functionality than these less expensive devices have. Looking at them from the other direction, they don't quite do all the neat things that one can do with a good laptop machine, but they certainly cost a lot less as well. Additionally, they're actually portable enough to take with you wherever you go, a claim that cannot honestly be made of the full-featured laptop computers.

Ordering My Life

In the month since I got my Newton, it has already become indispensable to me. The electronic calendaring functions have ordered my chaotic schedule, and the alarm function has certainly gotten me promptly to appointments I might have otherwise forgotten. Having contact information for both friends and business associates at my constant beck and call has proven most valuable. In addition, my Newton is currently loaded up with several games to while away the extra time that occasionally presents itself in the lines at the supermarket (Yahtzee is a current favorite with friends), a program for tuning my guitar, various books for my reading enjoyment (currently *Heart of Darkness*, *The Jungle Book*, and *The Adventure of Black Peter*), a sign language reference work, and a network analysis tool.

It Could Be for You

The Newton is not for everyone. However, it does provide a great means for some people of organizing all the information that is often so difficult to keep up with, as well as offering a fairly powerful computing platform that will fit in the palm of your hand. ■

Purchasing a Macintosh or Other Apple Product at UNT

By Eriq Neale, ACS General Access Lab Manager (neale@unt.edu)

UNT has a purchasing contract with Apple Computer that gives University faculty, staff, and students easy avenues for purchasing Apple products, including Macintoshes and the new Newton Message Pad. Faculty and Staff wanting to purchase Apple Computer equipment for their offices on campus can deal with UNT Purchasing directly. Most Apple Computer equipment is on the State Price Contract, though our Higher Education Purchasing Contract gives us prices that are better than those listed on the State Contract. Current prices can be acquired from Purchasing or from Sean McMains in the Computing Center.

Apple Products for Personal Use

Students, faculty, and staff wanting to purchase an Apple product for personal use can deal with Apple Computer directly or through the University Store or Academic Computing Services. Apple has instituted an 800 number for ordering products using a credit card or after having secured an Apple Computer Loan. While anyone can call and order products using this number, students, faculty, and staff are eligible for special pricing on equipment not available elsewhere. To get the special pricing when placing an order, a PIN must first be generated. Apple uses this PIN to verify eligibility for the special educational pricing. Anyone can get this number through the University Store, and students can also get the number from Eriq Neale at Academic Computing Services. Eriq Neale can also provide purchase consultation for students wanting to buy a Macintosh or other products. Both locations have educational pricing information on hand.

The ordering process is simple. Once you've decided on buying an Apple product, you can get your PIN generated. Then you call 1-800-877-HIED, give them your PIN, and place your order. Based on product availability, your new computer could be on your doorstep in just under two weeks.

The Apple Computer Loan

If you don't have a large enough limit on your credit or charge card (like me), the Apple Computer Loan could help. Students, faculty, and staff can call the Apple Loan phone number and have their application taken over the phone. If you are approved, you will get an authorization code that you can give to the Apple order line to complete the purchase transaction. Information about the loan is available from both the University Store and Academic Computing Services. The loan is limited to enrolled students and full-time faculty and staff.

Any questions regarding the purchase of Apple Computer equipment on campus may be directed to Academic Computing Services, 565-2324. ■

Macintosh Emulation on UNIX Workstations

Mark Thacker CWIS Coordinator (thacker@unt.edu)

As Apple Computer makes moves into the PowerPC arena, one hears more talk about the future of the Macintosh environment being available on more than one hardware platform. Of course, Apple will ship PowerPC Macintosh computers, running a version of Apple's System 7 operating system soon. However, there is one other major market that Apple wants a share of: the UNIX workstation market. To this end, Apple and other companies have made moves and products to allow people with UNIX workstations to run Macintosh applications on their machines. By allowing UNIX based products to run Mac applications, Apple and other vendors hope to ensure that the Macintosh marketplace will grow — and that it won't depend so much on hardware from one vendor, Apple.

This article covers three different methods of allowing Macintosh applications to run on UNIX based machines. Technically there is a fourth, Apple's own UNIX implementation called A/UX. This software actually runs UNIX on top of existing Apple hardware with the regular Macintosh System 7 running as a background process within it. However, I wanted to focus on non-Apple hardware UNIX-based machines. So, the real question is "How can I get the Mac version of <fill in your favorite application here> to run on my <name of some major UNIX-based workstation?>" There are two current solutions and one potential solution that are covered in this article.

Quorum Equal & Latitude

The approach taken by Quorum has been to not worry about emulating a Macintosh, the Macintosh operating system or even the Motorola 680x0 chip in the Mac; rather, their software modifies existing off-the-shelf applications to run with an X-Window user interface. Their package, Equal, is available for SPARC and Silicon Graphics machines and allows particular Macintosh applications to run in the UNIX operating system while using the host machine's user interface via an X-Window. Hence, if you are running Motif or OpenLook on your UNIX system, you would get Mac Microsoft Word running with a Motif or OpenLook interface.

This program spawns most likely from their work on a companion product known as Latitude. This is a developer's tool that allows Macintosh applications to be compiled to run on UNIX systems and use the X-Window user interface. Because the program is not running under any sort of Macintosh emulation mode there are four things that limit Equal's success:

- ☐ The interface is that of the X-Window system, not the Macintosh. Hence even dialog boxes and file navigation options will appear and function differently.
- ☐ Each application must be ported separately. Right now only Microsoft Word and Excel are available.
- ☐ No Macintosh services such as networking, Quicktime, sound and others are available for the application. Hence, don't look for a multimedia development package to be ported to Equal anytime soon.

- ☐ Since there is no Finder, CPU or operating system emulation, programs that use direct calls to any of these may not work. Obviously programs that make calls directly to the hardware will not work at all and will probably never be ported to Equal.

Equal and Latitude will be interesting to watch, but I doubt that they will capture any of the real market that Apple is shooting for with the Mac on UNIX goals. For now, if you really need to run the Mac version of Microsoft Word and Excel, then you could consider Equal. But, with other alternatives available, you may not want to.

Andataco Liken

Liken is a program written to be a more general Macintosh emulation package. It does have its own drawbacks however. Liken emulates a System 6.0.7 system, monochrome Macintosh with sparse networking or floppy disk capability. It is available for Sun SPARC and HP RISC machines and requires at least 16 Meg of RAM (normally not a problem in most UNIX machines). It does offer the advantage that the Macintosh look-and-feel is preserved within an X-Window on the UNIX host.

The program runs the Macintosh operating system (one that is basically over two years out-of-date) within an X-Window on the UNIX host. This means that the entire Mac look-and-feel is preserved because programs think they are running on a Macintosh. As a result, applications do not need recompilation to run in Liken. It is worth noting that there is no emulation of any particular Motorola CPU in Liken, just emulation of the operating system. Hence, programs making calls to specific chips on the Mac motherboard, or those violating Apple's programming rules (even some of Apple's do this) will probably not work under Liken.

So far, it doesn't sound too bad, or does it? There are several key items to con-

If you need to run a variety of Macintosh applications today on your UNIX workstation and you don't mind putting up with some limitations, Liken is probably your best choice.

sider before rushing out and purchasing Liken. Since Apple did strange things to disk drives to get the once-common 800K format floppy, other computers generally can not read the Mac 800K format. Liken doesn't solve this problem either, allowing support only for whatever the host UNIX machine has as a floppy drive; generally this is a 1.44 Meg floppy. This means that all of the software you get from manufacturers that ships on 800K floppies will be unusable in Liken.

Also, Liken only supports text cut-and-paste and a monochrome Mac screen. So, you can have millions of colors available to you on your UNIX machine and only have a black-and-white Macintosh screen, and you will only be able to cut-and-paste text strings between your other X-Window sessions and the Liken session.

Since only the single-application mode of System 6.0.7 is supported, you can not run more than one Mac program at once, unless you fire up another copy of Liken in the background on your UNIX host (basically then emulating two or more Macintosh systems).

The "virtual Mac" can access any file system that the UNIX system can, but Appletalk support is limited to only a bare handful of applications on the Macintosh side (mainly E-mail programs at this point). So, don't count on being able to access other AppleShare/Netware file servers with Liken. Speaking of networking, there is also no support for serial ports, so your Mac applications can not access a modem or other device normally available.

Oh yeah, speed. Liken does a reasonable job of executing, but even on a fairly well equipped UNIX host, it is very likely that a mid-range Macintosh

will outperform Liken. Given the amount of emulation that Liken is doing, this is still fairly respectable.

The most interesting part about Liken is that it is closest to the way that Apple wants to do emulation of the Macintosh on UNIX. It is also the closest in concept to a product from Insignia called SoftPC or SoftWindows, in which an MS-DOS compatible is completely emulated on a UNIX (or Macintosh) machine. Insignia went one step further than just emulating the operating system as their software emulates the actual hardware as well and has proven to be very bulletproof as a result. Andataco has promised a System 7 version of Liken, but no official word has been given concerning color or specific Motorola CPU emulation.

Apple Services for Open Systems

Vaporware. Yep, all products are as perfect as vaporware. This suite of products however, does indeed promise to do something not really done before — allow Macintosh applications to run at near native speeds on UNIX hosts without recompilation. They also promise one other thing: an officially supported Apple method of moving to open systems standards with the Macintosh environment.

Apple has been working to allow the Finder and other off-the-shelf applications to run under IBM's AIX UNIX operating system since they announced the joint IBM-Apple-Motorola PowerPC project in October 1991. From this, it is believed that Apple has rewritten major portions of the Macintosh operating system and Toolbox (the "look-and-feel" portion of the Mac)

into a portable form allowing it to be compiled onto a variety of UNIX host machines. Since the OS and Toolbox would actually be UNIX applications, native UNIX systems to handle input/output and graphics drawing would be used when a Mac application calls for them. So, the speed of software running in this environment should be fast as well.

Officially, Apple has announced that it will ship native versions of the Macintosh Toolbox and A.P.I. (Applications Programmer Interface) for IBM's AIX, Sun's Solaris, Hewlett Packard's HP-UX and Univell's UNIXware (UNIX on Intel machines from Novell). Apple has also said that they will allow major applications and certain system enhancements to run unmodified in a single X-Window on a UNIX system. Support for system extensions such as Quicktime, AOCe, Quickdraw GX and others will also be provided. In addition, developers will be able to write UNIX applications that take advantage of the Macintosh system extensions while still remaining UNIX applications (Quicktime movie viewers for Sun machines for instance). These last two items are what mark the difference between Apple's intentions and the other two alternatives above.

Apple's first real test of this idea is with PowerOpen, the joint UNIX operating environment from Apple and IBM. Here, Apple is integrating its own UNIX implementation, A/UX, with IBM's AIX UNIX onto the PowerPC (and other) CPU. PowerOpen will offer the ability to run "personalities" of different systems, including the Macintosh. Originally, Apple said that the Mac personality would include a Motorola 68040 emulator, and emulated versions of the Macintosh Toolbox and ROMs. This was to be accomplished using a binary translator package known as FlashPort, which translates a Macintosh program directly to a UNIX executable program. Since the initial announcement, Apple has since backed away from this method and has gone

with the more reliable alternative of actually recompiling the Toolbox and Finder to run as UNIX applications.

So, when can we see something? Remember that word "vaporware"? Apple originally said they would have something for the Sun SPARCstation machines by the end of 1993. Well, I haven't seen anything, have you? Rumor has it that first quarter 1994 is the new deadline for having something available. Isn't it curious that this would happen to coincide with the introduction of the PowerPC Macintoshes? I would not be too surprised to see the PowerOpen portion of the project on schedule with something released by then as well. PowerOpen promises to do a variety of things as well, including running multiple "personalities" on multiple hardware platforms.

Does A Solution Exist?

If you need to run a variety of Macintosh applications today on your UNIX workstation and you don't mind putting up with some limitations, Liken is probably your best choice. If you have a Mac on your desk and you just need to run UNIX, this article was not the one that you should have been reading! There are at least two good solutions to that problem as well (for later articles of course!) The wise buyer will adopt a wait-and-see attitude for this particular subject. Apple is making major noise about wanting to be an open company. An official Apple solution to the problem of Mac on UNIX will come, but who really knows what form it will take?

References

- "Mac apps to find a new home on UNIX turf," *Macweek*, May 17, 1993
- "Mac apps find home on UNIX," *Macweek*, January 1, 1993
- "Mac also rises on Sun Workstations," *Macweek*, January 1, 1993 ■

Internet Tools for the Macintosh

Dr. Philip Baczewski, Assistant Director of Academic Computing Services (ac12@unt.edu)

Any computer attached to the campus Ethernet network has access to the Internet; however, the Macintosh has some particularly friendly tools available for Internet access. The Macintosh, because of the nature of its graphical interface, can provide some unique views and methods of accessing Internet resources.

This article provides an overview of the tools that are available to perform various network tasks. This article also assumes some knowledge of Internet services. Most of these programs are available on a no or low cost basis, and a source for each program is generally provided with each description. If you require assistance in acquiring any of these programs or would like more information, contact Sean McMains (mcmains@unt.edu; 565-2039), Eriq Neale (neale@unt.edu; 565-4808), Mark Thacker (thacker@unt.edu; 565-2568), or Philip Baczewski (ac12@unt.edu; 565-3886) at the UNT Computing Center (ISB 119).

- ❑ **Pegasus Mail for the Macintosh** — Pegasus Mail for the Macintosh can be run on systems that are connected to the campus network as well as supported by a Novell file server that provides Macintosh services (currently around 16 on campus). Pegasus mail can provide Internet mail service directly from the Macintosh. Not only will it allow you to send mail to others at Internet sites, but it will also allow you to subscribe to BITNET and Internet mailing lists. As the campus moves to a more unified microcomputer electronic mail system, one priority is to be sure that Macintosh computers are equal players in the mail arena. If you have questions in regards to your machine's access to Pegasus mail, contact your Novell Network manager or contact Mike Murdock (murdock@cc1.unt.edu; 565-4314) at the UNT Computing Center.
- ❑ **MacTCP** — MacTCP is an addition to your Macintosh's operating system. MacTCP supports a transparent interface between the various networking programs and the TCP/IP network (in this case, the Internet). Once MacTCP is installed, you will probably not ever use it directly, however, a number of the programs discussed below will use it as their access point to the Internet. Academic Computing Services currently maintains a site license for version 1.11 of MacTCP. If you wish it to be installed on your Macintosh, contact Sean McMains (mcmains@unt.edu; 565-2039) at the UNT Computing Center.
- ❑ **Telnet** — The Computing Center supports NCSA Telnet version 2.5 for the Macintosh as the Internet VT100 remote-login solution. Not only will this program provide access to our on-campus host and card catalog systems, but it will also let you connect to remote library card catalog systems and a number of other Internet services. If your Macintosh is connected to the Campus Ethernet network, you can copy NCSA Telnet from Academic Computing Services' AppleShare server named Mimas. Use Chooser to select the AppleShare services in the ISB ACS zone and then connect to Mimas as Guest. You'll find the NCSA Telnet self-extracting archive on the "Best of Macintosh" volume in the "Mac Internet Tools/Telnet" folder. If this procedure won't work for you, contact the Computing Center for assistance.
- ❑ **TN3270** — TN3270 is the Telnet equivalent for accessing IBM mainframes. It will allow you to establish a remote-login connection over the Internet to mainframe systems and do the appropriate terminal emulation. The version of TN3270 for the Macintosh that is available was written at Brown University. Some Internet library card catalog systems run on IBM mainframe systems. Brown TN3270 is also handy if you use the UNT's Academic mainframe system. Like Telnet, this

program is available on Mimas, on "Best of Macintosh" in the "Mac Internet Tools/TN3270" folder.

- ❑ **Fetch** — Fetch is a very nicely written program to perform ftp file transfers to and from remote sites. Fetch was written at Dartmouth College, a campus that makes extensive use of Macintosh computers, and Fetch is free of charge to educational users. Fetch offers a Macintosh-style interface for connecting to anonymous ftp sites and retrieving files. It will also automatically decode files of various compression and text encoding types. For example, if a file you fetch from a remote site is in Binhex format, Fetch will perform the file transfer and then open a window for you to specify where to save the decoded version of the file. Fetch can also do the same for the popular public-domain compression program formats. Another nice feature of Fetch is its ability to analyze a file and determine what type it is. The program lets you specify whether the file transferred will be text or binary. There is also an Automatic selection which causes Fetch to attempt to determine the file type, in almost all cases successfully. This ability, combined with the automatic conversion features, makes Fetch one of the easiest Internet tools to use. Fetch is available on Mimas on "Best of Macintosh" in "Mac Internet Tools/FTP/Client."
- ❑ **TurboGopher** — TurboGopher is one of the best ways to gain access to the Gopher system that UNT is using as the basis for its campus-wide information system. TurboGopher makes use of the Macintosh's graphical interface tools, or as some put it, "Mac things," to create an intuitive interface to the resources available from Gopher servers. When using TurboGopher, it is also necessary to have NCSA Telnet and Brown TN3270 installed in order to have full access to the resources available via Gopher. You can find TurboGopher on Mimas on "Best of Macintosh" in "Mac Internet

Tools/Gopher/Client." For more information about Gopher, see the November/December 1993 issue of *Benchmarks* or contact Mark Thacker (thacker@unt.edu; 565-2568).

- ❑ **News Readers** — Several USENet news readers are available for the Macintosh, and there has yet to be a standard set for supporting one here at UNT. Each of the following has some good features, but none has yet been identified as being best suited for our needs on this campus.
 - **Nuntius**: Nuntius is a news reader program that is "freeware," meaning that while it is copyrighted, there is no charge for its use. It has a very nice Macintosh-style hierarchic interface, with groups of groups represented by a folder icon and individual groups being represented by a file icon. However, because Nuntius is written to support a mail program called Eudora, no direct mail services are available when using this program here on the UNT campus. This means that while you can post news messages, direct replies to the original poster are not possible, and news messages cannot be forwarded to other people's mail addresses.
 - **NewsWatcher**: NewsWatcher is another freeware program for reading Network News on a Macintosh. It has one advantage over Nuntius in being able to reply to a message via E-Mail. Like Nuntius, forwarding news messages to other mail addresses is not possible. While it has a graphical user interface, it is not as hierarchic as that of Nuntius.
 - **InterNews**: InterNews is a news reader written at Dartmouth College and is free for use at educational institutions. In addition to its news reading capability, InterNews has some built-in mailing functionality for forwarding news messages or replying di-

rectly to a news message's author. Unfortunately, the Internews user interface is not as "Mac-like" as the previous two programs, however, its functionality makes it a candidate for a supported package here at NT.

If you are interested in more information about Macintosh news readers, contact Mark Thacker (thacker@unt.edu; 566-2568) at the UNT Computing Center.

- ❑ **MacX** — MacX is a software product from Apple Computer Inc. which implements X Window server software on the Macintosh. MacX can use the Macintosh's graphical interface as its window manager or use an external window manager. The Computing Center currently maintains a site license for MacX version 1.1 which will work with Macintoshes running System 6. For those using System 7, you will need to purchase a right to update license for \$17.00 which will entitle you to have version 1.2 installed. For more information, contact Sean McMains (mcmains@unt.edu; 565-2039) at the UNT Computing Center.
- ❑ **Mosaic** — Mosaic is the newest entry to the suite of Internet tools. Mosaic is a free program written by the National Center for Supercomputer Applications (NCSA, also the Telnet folks). Mosaic provides access to diverse Internet resources including World Wide Web servers, Gopher servers, ftp sites, and WAIS databases. Mosaic uses a graphical interface as its navigational tool and its concept is quite suited to the Macintosh environment. Mosaic requires that MacTCP be installed on your machine. Be forewarned that the Macintosh version is still a bit buggy and tends to be a memory hog. If you are interested in trying it out, you can retrieve it via anonymous ftp (or via Fetch) from ftp.ncsa.uiuc.edu in the "/pub/mosaic/macintosh" directory. ■

The Network Connection

By Dr. Philip Baczewski, Assistant Director,
Academic Computing Services and BITNET INFOREP (ac12@unt.edu).

*This column is a continuing feature of **Benchmarks** intended to present news and information on various aspects of wide area networks.*

A Brave New Internet

As I hinted in the last *Network Connection*, there are some changes looming in the operation of the group of networks we know as the Internet. You may have caught news reports of Vice President Gore's proposal to restructure the communications industry in the U.S. The administration's proposal seeks to reduce regulation on the telephone and cable TV industries and encourage the development of a new level of electronic information access for U.S. households. If implemented and successful, the new policies will have a definite effect on who and how many will have access to the Internet.

Changes to the Internet as we now know it may happen even sooner. Currently, much of the Internet traffic is carried on the National Science Foundation-subsidized NSFnet. This network was developed primarily to support communication to the NSF-funded supercomputer sites, however, another result has been the development of a national networking infrastructure that includes local sites, regional networks, and national communications providers. The most recent legislation implementing the concept of a National Research and Education Network (NREN) is encouraging the privatization of a number of services which to date have been subsidized.

The biggest noticeable change which is looming on the horizon is the restriction of traffic on the NSFNet to communication only from member Supercomputer sites. While this is the current mission of the NSFNet, it also currently allows any two NSFNet member sites to communicate with each other. Such a restriction in NSFNet traffic obviously has serious implications for the Internet as we now know it. If the NSFNet is not going to be the primary communications path for the Internet, then an alternate solution will be needed.

Fortunately, a number of companies are ready to begin providing Internet services in the wake of the proposed changes. Sprint, for one, has developed an extensive fiber-optic network in the U.S. and is poised to become a major player in data networking services. Other companies are also gearing up to provide network access. From the University's standpoint, there may not be noticeable change. We will most likely remain members of one or both of the regional networks in Texas, Sesquinet and THENET, and they in turn will contract with a service provider for the Internet access. The NSF is providing grants to educational organizations to help ease the conversion process from a primarily subsidized operation to a mostly private infrastructure.

One of the main benefits of the change in the Internet should be the extensive development of private Internet services. It is already possible to contract with a private service provider to get Internet access from your home. The trend toward more reliance on commercial network providers should greatly increase the number and extent of services available to private households. The year 2000 may see us truly in the midst of the Information Age. ■

FBI Asking For Help in UNABOMB Case

This message has been posted in various places throughout the Internet.

The FBI would like to make you aware of its investigation concerning the UNABOM case. We have made the UNABOM information available to you in the following ways:

- Anonymous FTP: Host: naic.nasa.gov Directory: /files/fbi Files: README, UNABOM-press-release.txt URL: ftp://naic.nasa.gov/files/fbi
- Gopher: Type=1 Name=F.B.I. Gopher Path=1/government-resources/fbi Host=naic.nasa.gov Port=70 URL: gopher://naic.nasa.gov:70/11/government-resources/fbi
- World Wide Web: URL: http://naic.nasa.gov/fbi/FBI_homepage.html

The information presented on the Internet about the UNABOM investigation has been made available publicly before. Recent electronic media presentations include: CBS's "Eye to Eye" with Connie Chung (12/16/93), and Fox's "America's Most Wanted" (11/23/93). Print media stories about the UNABOM investigation have also appeared: *Washington Post* (11/27/93), *New York Times* (10/7/93), etc.

The purpose for submitting the information on the Internet is two-fold. First, the Internet is another medium that enables us to reach as wide an audience as possible; to "spread the word." Second, Internet users are precisely the type of individuals that to date have been recipients of explosive devices attributed to UNABOM: scholars and researchers.

You are not being asked to place yourself in harm's way. You are encouraged to come forward if you have information that might help identify, arrest, and convict the person(s) responsible for these bombings. Contact the UNABOM Task Force at 1-800-701-2662. ■

The Internet Index

Compiled by Win Treese (treese@crl.dec.com), 7/8/93 Revised: 12/16/93

- ☐ Annual rate of growth for Gopher traffic: 997%
- ☐ Annual rate of growth for World-Wide Web traffic: 341,634%
- ☐ Average time between new networks connecting to the Internet: 10 minutes
- ☐ Number of newspaper and magazine articles about the Internet during the first nine months of 1993: over 2,300
- ☐ Number of on-line coffeehouses in San Francisco: 18
- ☐ Cost for four minutes of Internet time at those coffeehouses: \$0.25
- ☐ Date of first known Internet mail message sent by a head of state: 2 March 1993 (Sent by Bill Clinton, President of the United States)
- ☐ Date on which first Stephen King short story published via the Internet before print publication: 19 Sept 1993
- ☐ Number of mail messages carried by IBM's Internet gateways in January 1993: about 340,000
- ☐ Number of mail messages carried by Digital's Internet gateways in June 1993: over 700,000
- ☐ Advertised network numbers in July 1993: 13,293
- ☐ Advertised network numbers in July 1992: 5,739
- ☐ Date after which more than half the registered networks were commercial: August 1991
- ☐ Number of Internet hosts in Norway, per 1000 population: 5
- ☐ Number of Internet hosts in United States, per 1000 population: 4
- ☐ Number of Internet hosts in July 1993: 1,776,000

List of the Month

Each month we will highlight one BITNET, Internet, or USENET Special Interest Group (SIG) mailing list. This month's list...

Kid Media Discussion List kid.media@airwaves.chi.il.us

Owner: William Pfeiffer wdp@uiuc.edu

The Kid Media Mailing List is a list (started Nov 23 1993) dedicated to the furtherance of communications between people interested in, or involved in, the creation, production, distribution and/or consumption of media whose primary target audience is children. For the sake of inclusiveness, the list is defining "children" as anyone under the age of 18 years, although most of the media to which this list is targeted would be aimed primarily at those under 12.

As a general rule, Kid Media is open to any constructive traffic on the topic. We are counting on the participants to bring the list to life, as it is being run as a tool of communication and not a podium for one or two so-called "experts."

Some of the topics suggested for discussion are (but not limited to): Children's Public Television programs and their impact; Kid's Music and Musicians; Producing Children's media; The role of computers and computer animation in Kid's media; How Kid's Media deals with Societal Issues like AIDS, Sexuality; Family problems, Abuse, Racism, Drugs, Self-Esteem, etc.; Education via media; Kid's movies and videos.

To Subscribe/Unsubscribe or get a help file, send mail to: kid.media-request@airwaves.chi.il.us You MUST put one of these commands in the SUBJECT: field of your letter: 1) Subscribe 2) Unsubscribe 3) Help ■

- ☐ Round-trip time from Digital CRL to mcmvax.mcmurdo.gov in McMurdo, Antarctica: 640 milliseconds Number of hops: 18
- ☐ Number of USENET articles posted on a typical day in February 1993: 35,000
- ☐ Number of megabytes posted: 44
- ☐ Number of users posting: 80,000
- ☐ Number of sites represented: 25,000
- ☐ Number of Silicon Valley real estate agencies advertising with Internet mail addresses: 1
- ☐ Terabytes carried by the NSFnet backbone in February 1993: 5
- ☐ Number of countries reachable by electronic mail: 137 (approx.)
- ☐ Number of countries not reachable by electronic mail: 99 (approx.)
- ☐ Number of countries on the Internet: 60
- ☐ Amount of time it takes for Supreme Court decisions to become available on the Internet: less than one day.
- ☐ Date of first National Public Radio program broadcast simultaneously on the Internet: 21 May 1993
- ☐ Percent of Boardwatch Top 100 BBS systems with Internet Connectivity: 21
- ☐ Number of people on the Internet who know you're a dog: 0 ■

Information Infrastructure Task Force Announces Computer Bulletin Board

Press Release: Thursday, December 16, 1993

Larry Irving, Assistant Secretary of Commerce for Communications and Information announced today the Information Infrastructure Task Force (IITF) Secretariat has begun operating a computer bulletin board system to provide public access to IITF and other National Information Infrastructure (NII) related documents, including IITF schedules, committee reports and minutes of meetings.

"Our goal is to make government information available and easily accessible to the public," stated Larry Irving. "As we move towards our goal of rapidly expanding our national information infrastructure, we want to ensure that the public is kept aware of our activities."

The Information Infrastructure Task Force (IITF) Bulletin Board may be reached through Internet or by calling 202/501-1920 using a personal computer and a telephone modem. The bulletin board is available to the public 24 hours each day, seven days a week.

For access through Internet, point your Gopher client to iitf.doc.gov or telnet to [iitf.doc.gov](tel://iitf.doc.gov) and log in as gopher. Comments may be sent by E-Mail to nii@ntia.doc.gov.

For telephone access, dial 202/501-1920. Modem communication parameters should be set at no parity, 8 data bits and 1 stop bit (N,8,1). The bulletin board modem operates at speeds up to 14,400 baud. If the above number is busy, the same information may be accessed by dialing 202/482-1199 and choosing the IITF item on the menu.

When dialing in for the first time, you will be prompted for your name, location and terminal type. It is recommended that you select VT-100 as your terminal type.

After you have logged in, you can choose to read or download information stored under the subject areas listed below.

- ☐ Frequently Asked Questions
- ☐ Directory/Points of Contact
- ☐ Press Releases
- ☐ Schedules/Calendar of Events
- ☐ IITF Committee Reports and Minutes
- ☐ Documents/Papers
- ☐ Selected Legislation

If you have any questions, contact Charlie Franz, Dan Davis or Art Altenburg at 202/482-1835 (E-Mail: cfranz@ntia.doc.gov). ■

State of Texas Recognized for Service, BBS

By Claudia Lynch, *Benchmarks* Editor
(as04@unt.edu)

The State of Texas was one of six state governments honored recently by *CIO* magazine, a national publication for information executives. According to *Tech Times*, the Department of Information Resources (DIR) Newsletter (Vol. 5, No. 5), DIR was listed on the magazine's "honor roll" as one of the top government agencies committed to customer service.

State BBS

In its list of Texas' accomplishments, *CIO* magazine highlighted a BBS managed by the Comptroller of Public Accounts. "Window on State Government," as the BBS is called, provides on-line data on the state's economy, population statistics, employment forecasting, and sales tax reports to Texas citizens.

Accessing the BBS

The Window on State Government BBS can be accessed by calling 1-800-227-8392. The BBS has twelve phone lines, with four 14.4 and eight 9,600 baud modems. You can find a lot of useful information on this BBS, including a complete index of tax forms, and an up-to-date file on the latest winning lottery numbers, previous winning combinations, and an analysis of frequencies of winning numbers. One of the best features of the BBS is the ability to dial out to other Government BBSs (this is an item on one of the menus). Other BBSs available include the Texas Parks and Wildlife BBS, The Texas Marketplace, run by the Department of Commerce, and the Texas Cancer Data Center. ■



News From the CWIS/Gopher Hole

By Mark Thacker, CWIS Coordinator
(thacker@unt.edu)

This column covers features and resources available through the University's Gopher Campus Wide Information System (CWIS). Gopher is available on various UNT host computers including the VAX, Sol, and Jove. It is also available in the General Access Labs and on various Novell file servers around campus.

Change in Focus

This month, I have decided to finally get back to one of the primary focuses of this column: highlighting new Gopher servers that I have seen in the great vastness of Gopherspace. I foresee that this will probably remain the primary focus of my column for now, with additional highlights of new UNT Gopher/USENET NEWS information as it is appropriate.

Most of the information about these services comes straight from the source — the Gopher administrators. In fact, you can track the progress of Gopher yourself by reading the USENET NEWS group comp.infosystems.gopher.

New Area of Gopher Dedicated To This Column

In the interest of making access to Gopher systems easier, I have set up an area of our Gopher tree that contains pointers to all of the Gophers mentioned in this column. However, I will change these pointers as I write a new column . . . so, you need to plan on placing bookmarks to these services if you find them useful; this way you can return to the servers anytime you like, even if our Gopher server is not up. See your individual Gopher client documentation for more information about bookmarks.

The new area of Gopher is located at:

Remote Information & Resources on the Internet

Gophers In This Month's _Benchmarks_

New Gopher Highlights

Each Gopher featured here is accompanied by the text describing it as posted by the original author.

- ☐ **National Geophysical Data Center** — The National Geophysical Data Center, a division of the National Oceanic and Atmospheric Administration is pleased to announce that its Gopher server, *gopher.ngdc.noaa.gov* is open for business. This gopher will contribute Earth and near-Earth scientific data archives to gopher-space, as well as links to other gophers in the scientific, academic and data repository communities.

Email comments and questions to
gopher@gopher.ngdc.noaa.gov.

Bruce Welker
ISD System Administration
NGDC/NOAA
Mailstop E/GC4
325 Broadway
Boulder, Co 80303
email: bdw@terra.ngdc.noaa.gov
audio: 303-497-7079
fax: 303-497-6513

Discl: Whatever I say is a personal opinion, unsupported by any authority or fact.

- ☐ **SchoolNet Gopher** — SchoolNet is a joint Federal/Provincial initiative of the Canadian Government. Our gopher has been designed specifically for the needs of students and educators (K-12).

Please check it out and put it up. Our gopher address is

ernest.ccs.carleton.ca 419

If you have any comments or suggestions please drop me a line schoolnet-admin@ccs.carleton.ca

Thanks!

Chris Lalonde

FreeNet Science and Engineering
Consulting Group

- ☐ **National Health Security Plan** — President Clinton's National Health Security Plan is available on line now. The Gopher site I chose has the full text of the plan, searchable indexes to it, and commentary. It appears as *National Health Security Plan*.

Mark Thacker

CWIS Coordinator

- ☐ **Council for the Renewal of Undergraduate Education** — We are pleased to announce a new Gopher server

Name=Council for the Renewal of Undergraduate Education

Host=130.235.92.156

Port=70

Path=

Type=1

This Gopher has been experimental since spring 1993. Now we've re-

General Information

ceived a grant from the Swedish Council for the Renewal of Undergraduate Education and the service will be permanent. The Gopher will contain information on the members and projects of the Council.

The main activities of the Council are:

1) Distribute money to projects to enhance the quality of undergraduate education

2) Teacher exchange program. Next year 100 Swedish professors will spend at least six weeks fulfilling teaching duties at a foreign university. In exchange a professor from that university will teach in Sweden for six weeks.

3) Support efforts to recruit women to natural science and civil engineering education

As many of the projects involve computers the Council has started a Network for Computer based Learning. The network is responsible for the new gopher.

The largest part of the gopher will be dedicated to a database with programs for CBL.

Here we will have educational programs, reviews of programs and links to other sources and articles on CBL.

We have started with the subjects Medicine and Physics.

!!! This announcement is also a call for material on CBL. !!!

Much of our text material has been in Swedish so far but we aim and have already started to transform into English.

The administrators of the server are

Bengt Kjollerstrom
Dept. of Theoretical Physics
Solvegatan 14A
223 62 Lund
voice: +46-46-109081
facsimile: +46-46-104438
email: bengtk@thep.lu.se
and ...
Hans Svensson
email: hans@thep.lu.se

□ **IBM ACIS Higher Education Information Server - IKE** — The IBM Kiosk for Education (IKE) is an information service accessible primarily by gopher and also available via telnet, and dial-in. IKE offers many different types of IBM information, application software, and a bulletin board for IBM users in the higher education community.

The system is funded by IBM and developed and operated by the University of Washington.

There are three basic services offered on this system — files for browsing, software to download, and forums where you may share information with other users. The files include: IBM Product Announcements, General IBM News, IBM ACIS Higher Ed News, IBM Hardware and System Software Catalogs, recent product announcements, Instructional Software Descriptions and Reviews, IBM Publications, and Usenet IBM Archives. The software includes instructional programs for higher education and OS/2 IBM Employee-Written Software.

Forum (bulletin board) topics include Campus Networking, Telecommunications Technical Exchange, Instructional Computing, Multimedia, discipline topics (Life Sciences, Mathematics, etc.), Distance Learning, as well as technical topics related to IBM product use in higher education.

Accessing the system: Gopher users should select "IBM ACIS Higher Education Information Server - IKE" from their gopher list. If your campus has its own gopher server, IKE may be added to the menu using the following gopher information:

Type=1

Name=IBM ACIS Higher Education Information Server - IKE

Path=

Host=ike.engr.washington.edu

Port=70

Telnet users may telnet to "128.95.32.61". The number for dial-in users is (206)543-3761.

ike@ike.engr.washington.edu
(206)543-5604

□ **Space Shuttle/Hubble Press Release Photographs** — I have loaded the press release photos from STS-58, STS-51L, and STS-1 on an anonymous ftp and Gopher server (*krakatoa.jsc.nasa.gov*) at the Johnson Space Center. I have also included the Hubble telescope deployment photos. Look under /graphics/PressReleases.

Future missions will be posted as soon as the press release sets have been selected, usually about a week after landing.

If there is sufficient interest I will also load images from each mission from Mercury to the present.

We are discussing the possibility of making all NASA manned mission photos available online. Please let me know if you would use this service and what you would do with the images if you had them. I would also like feedback about the quality of our JPEG compressed files.

Enjoy!

Kevin Marsh kmarsh@deneb.jsc.nasa.gov

Disclaimer: This posting does not reflect official policy or official opinions of any kind.

□ **United States Government Gophers** — I am posting the following article for Calvin Boyer; please send any comments to him. By the way, anyone who has not seen the rest of Cal's gopher offering is really missing something.

David Walker
Assistant Director, ECS
Office of Academic Computing
University of California, Irvine

US Government gophers

There are presently 83 selections under our "United States Government Gophers/" No doubt some publicly accessible US government

General Information

and quasi governmental gophers have been overlooked or are new on the scene.

Name=United States GOVERNMENT Gophers

Type=1

Port=7000

Path=1/gopher.welcome/peg/GO
PHERS/gov

Host=peg.cwis.uci.edu

We would welcome link information to update our list. Thanks for interest and assistance. Please send data to—

cjboyer@uci.edu

Calvin Boyer

University of California, Irvine

Office of Academic Computing

INTERNET: cjboyer@uci.edu ■

UNT-Health Science Center Announces New Gopher

By Mark Thacker, CWIS Coordinator
(thacker@unt.edu)

The UNT-Health Science Center at Ft. Worth (formerly TCOM) has announced the availability of their Gopher server for general use. Mike Hryekewic in the Information Technology Services Division is acting as the Gopher administrator.

As time permits, we can expect to see information pertaining to the activities of UNT-HSC, important campus events and other news. You can reach the UNT-HSC Gopher at the address of: gopher.hsc.unt.edu, or by choosing the "UNT-Health Science Center, Ft. Worth" menu item from the top level menu of the main UNT Gopher. ■

Updated Electronic Phone Book Available on UNT Gopher

By Mark Thacker, CWIS Coordinator (thacker@unt.edu)

The electronic phone book available in the UNT Information & Resources area of the UNT Gopher has been updated to include the latest faculty/staff information. The update includes electronic mail addresses of those faculty/staff wishing to provide it.

The update also allows you to search by phone number (office and home) as well as electronic address. Note that with most Gopher clients (DOS, UNIX and Windows) the search is an *exact match* only. This means that you might not be able to search for phone numbers containing a certain string. The Mac TurboGopher client and the Windows HGopher client allow you to search (in all valid search fields) for records that *begin* with a certain string (for example "(817)565-").

Phone numbers (both office and home) are now in the "(xxx)xxx-xxxx" format. So, all on-campus office phone numbers begin with "(817)565-". This was done so that people using our phone book from off-campus locations on the Internet would also have the area code (someone in Minnesota doesn't necessarily know that UNT is in the 817 area code). Student records have not been updated to this form yet.

I expect to update the phone book again to include the most recent student information early in the Spring 1994 semester. Look for another announcement in *Benchmarks* soon. ■

Dallas Museum of Art Providing Information and Images on UNT Gopher

By Mark Thacker, CWIS Coordinator (thacker@unt.edu)

I am proud to announce that we have our first real "external" information provider for the UNT Gopher system: the Dallas Museum of Art. They have agreed to provide information about current museum events, showings, activities and even selected images from their collection. Kevin Comerford will be providing the information on a weekly basis. Expect the collections of images to change once every one to two weeks.

To view the information in Gopher, follow this path from the root of the UNT Gopher:

Denton, Dallas & Ft. Worth Information & Resources

Dallas Museum of Art - Information & Images

If you have any questions concerning this Gopher item, please contact me. ■



Information Resources Council News

Minutes provided by Sue Harrison, Recording Secretary

IRC Regular Voting Members: Ray von Dran, Library and Information Sciences (Chair); Cengiz Capan, College of Business; Carolyn Cunningham, Student Affairs; Paul Dworak, Faculty Senate; Brian Forsman, TCOM Information Resources Council; Chuck Fuller, Fiscal Affairs; Larry Gleeson, School of Visual Arts; Don Grose, Libraries; David Hartman, School of Community Services; Royce Lumpkin, College of Music; Sam Magill, TCOM Director of Information Technology Services; Steve Miller, Administrative Affairs; Tom Newell, Telecommunications (Ex-officio); Don Palermo, Academic Administration; Jean Schaake, College of Arts and Sciences; Juliet Getty, School of Merchandising and Hospitality Management; Paul Schlieve, College of Education; Virginia Wheelless, Associate Vice President and Director, University Planning and Institutional Research. **IRC Ex-officio Nonvoting Members:** Bill Buntain, Computing Center; Jim Curry, Microcomputer Maintenance Shop; Paul Gandel, Computing Center; Richard Harris, Computing Center; Coy Hoggard, Computing Center.

November 16, 1993 Meeting

Attendance

Voting members present: Cengiz Capan, Cathy Cobb (for Steve Miller), Carolyn Cunningham, Paul Dworak (for David Shrader), Chuck Fuller, Kandace Gandel (for Virginia Wheelless), Larry Gleeson, Don Grose, Barbara Hall (for David Hartman), Monica Holmes, Tom Newell (ex-officio), Jean Schaake, Paul Schlieve, Kathy Swigger, Ray von Dran (chair).

Non-voting members present: Bill Buntain (ex-officio), Jim Curry (ex-officio), Paul Gandel (ex-officio), Richard Harris (ex-officio), Coy Hoggard (ex-officio), Sue Harrison (recording Secretary).

IRC Steering Committee

Chairman von Dran reported that he reported three items to the IRC Steering Committee:

- 1 The addition of two representatives to the IRC, one undergraduate student and one graduate student.
- 2 The Instructional Technology Subcommittee's recommendation to redirect funds that are intended for renovation of the Auditorium Building.
- 3 The recommendation of the IRC that there be no restrictions placed on the use of the Internet.

Items 1 and 2 were accepted by the Steering Committee; however, the issue of renovating the Auditorium Building was returned to the Instructional Technology Committee for reconsideration. Paul Gandel added that Celia Williamson is working

with a subcommittee to develop a more detailed justification for the committee's recommendation, as well as more concrete suggestions for alternative uses of the funding.

Discussion followed concerning use of the Internet which included a case of legal action being brought against UTD regarding inappropriate use of the Internet, and a question of whether or not to provide warnings to students about the appropriate use of the service. It was reported that Richard Rafes has taken this issue under advisement and it was agreed that since there are already University policies and procedures in place for handling any situations that may arise, nothing further needs to be done to regulate the use of the Internet at this time. It was suggested that this issue be addressed by the Instructional Technology committee, and that it is insured that basic guidelines are provided so that there is an avenue of recourse provided in the event there is a situation that has to be dealt with. In addition, it was recommended that instructors and lab supervisors be educated as to any guidelines, policies and procedures in existence for handling incidents.

Vision Statement

Kathy Swigger presented the finalized vision statement and reported that the committee had not received any comments or requests for changes to the statement; therefore, the committee decided to keep the title of the statement "Vision for the Role of Information Technology" rather than change it to Information Resources as had been suggested at the last IRC meeting. A motion to accept the Vision Statement was passed.

General Access Labs

Cengiz Capan reported that the General Access Labs are working very well and experiencing no problems. The committee continues to discuss the changing nature of computing and is

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trying to keep the labs up-to-date in order to meet the needs of faculty and students. Two GAL policies are under revision at this time; one concerns definition of a "continuing" student with regard to who should have access to the labs; and the other concerns placing restrictions and limitations on laser printer output. Several methods of monitoring printer output, some of which are already in use in the labs, were discussed. It was reported that there are presently no color printers in the General Access Labs, but students do have access to one in C.I.S.

Strategic Plan

Richard Harris presented a tentative calendar for finalizing the University Strategic Plan which aims at bringing the whole University planning process in sync with the DIR reporting process. He also distributed a proposed timeline which Susan Pierce, Virginia Wheelless, and Cengiz Capan developed. Susan Pierce said it is hoped that the timeline is set forth in a way that spreads the tasks out over the whole year. She asked for feedback from the IRC members and said that the Strategic Planning Committee will meet to iron out the details at its next meeting and she will present the final timeline to the IRC at its December meeting. It was announced that the SPC meetings are open to anyone interested in attending.

E-Mail Task Force

Paul Schlieve reported that the E-Mail Task force would like the IRC to select another committee to deal specifically with the issue of electronic forms because electronic mail alone is such a complicated issue that his task force doesn't have time to deal with electronic forms. It was agreed that the Administrative Program Group would be the appropriate forum for addressing the issue of electronic forms because forms are key to administrative functions. The Chair proceeded by removing electronic forms from the E-Mail

Task force's charge and asked that it be taken up by the Administrative Program Group. Regarding E-Mail, Schlieve reported that in spite of the fact that this is an evolving issue, the task force is hopeful that they will decide on a system whereby everyone can communicate with each other. They will not be recommending that there be a single mail package used as a standard for the campus.

Computerized Classrooms

The need for computerized classrooms was discussed and assigned to the Instructional Technology Subcommittee, for further study.

Program Groups

Paul Gandel reported that the Instructional Program Group met and talked about their charge and briefly set goals and objectives.

Tom Newell reported that the Communications Program Group met and wished to make several recommendations to the Council as set forth in the committee's report. The Council agreed that Don Grose and Ray von Dran, who serve on the University Planning Council, would see that the Program Group's recommendations were carried to the next UPC meeting.

Susan Pierce reported that the Standards and Cooperation Program Group has met and set their regular meeting time as the 2nd and 4th Mondays of each month, 2:00-4:00 pm, Personnel Conference Room, in Marquis Hall. The group has met and reviewed the Information Resources Strategic Plan, Standards and Cooperation goals, objectives, and strategies. They also reviewed several proposals presented by Bill Buntain last May, and believe those proposals will provide a good foundation for addressing some of the issues of their area. One immediate recommendation the group wishes to make is that Property & Inventory Control strongly emphasize assigning individ-

ual custodianship to capital inventory, rather than all capital inventory in a department assigned to the department head. A second recommendation is that the purchase order on-line system be expanded to list line items purchased and not just vendor name. Susan also reported that the group is in the process of updating the Supported Computing Items List (SCIL).

Minutes of Program Groups will be distributed to IRC members via E-Mail.

December 14, 1993 Meeting

Policy Requested

The Chair reported that Richard Rafes has asked the IRC to draft a policy, consistent with its recommendation to the IRC Steering Committee, regarding the use of Internet News Service. Rafes will then add the legal terminology to make it a legal policy. Paul Gandel suggested that a simple policy statement could be made, such as "This resource should be used in accordance with policies and procedures already in existence at UNT." Ray von Dran reminded the group of questions raised at the last meeting regarding procedure to follow in the case of reports of sexual harassment in the use of this resource in General Access Labs. Gandel reiterated that the policies and procedures for complaints of this nature are already in place and that lab monitors just need to be educated about them. The Chair appointed Paul Gandel, Paul Schlieve and Arne Almquist as a subcommittee to draft a statement for Mr. Rafes. It was agreed that training of lab monitors would be left to the General Access Lab Committee to address.

Steering Committee

Ray von Dran reported that he had presented the IRC Vision Statement to the IRC Steering Committee and it was accepted; the statement was also presented to the University Planning

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Council. The Steering Committee was also advised of the need for \$200,000 for the campus communication infrastructure, for which there is no immediate visible source of funds available. The \$40,000 needed for enhancement of existing wiring was not denied; however, the Steering Committee would like to have a little more information about what buildings are included. The Committee suggested that a department needing additional wiring and having no funds should alert its vice president about that need.

The Chair asked that the Communications Program Group 1) prepare a detailed report to justify the expenditure of \$40,000, for presentation at the next IRC meeting; and 2) address the issues associated with long-range planning for the wiring needs of the campus.

IRC Planning Timeline

Richard Harris distributed a draft of a timeline for IRC planning for Spring of 1994, explaining that if this timeline is followed, it will afford the IRC Program Groups an opportunity to include their input into the University planning process. There were no objections to following the suggested timeline.

Program Groups

Each of the Program Group Conveners made reports, which indicated they were organizing and beginning to set goals. The Standards & Cooperation Program Group has updated the Supported Computing Items List (SCIL). This list is available either on Gopher or in the Computing Center.

Customer Advantage Program

It was indicated that current plans for implementation of the WordPerfect Customer Advantage Program call for each college to have an assigned software manager who would be responsible for consolidating licensing infor-

mation for quarterly reports to be submitted to the Support Services Coordinator in the Computing Center. Multiple people within a college could be authorized to download and install the software in the program, but the college would submit a single report. Any requests for modifications to this approach are to be presented to Bill Buntain or to the Standards and Cooperation Program Group.

Instructional Technology Committee

Celia Williamson distributed a report from the Instructional Technology Committee, as well as a recommendation for the use of the Main Auditorium, prepared by Mark Withers, of CIS. Williamson stated that after further review of the issues relating to the renovation of the Main Auditorium, the ITC wishes to stand by its original recommendation to the IRC and submitted these documents in support of that recommendation. A motion was passed to accept the ITC's report and the recommendation of the Chair.

Gopher Demonstration

Mark Thacker, the Campus Wide Information Coordinator, presented a demonstration of "Gopher," showing the group how to use it and what information is available on the service. He explained that Gopher is available to anyone with an Ethernet card in their PC, and that an ID is not needed.

Conclusion

Cengiz Capan stated that a proposal from the Computing Center or the IRC needs to be approved so that Bill Buntain can move forward with obtaining PC software site licenses for the whole campus. He urged that something be done quickly. The Chair charged the Standards & Cooperation Program Group to prepare such a proposal and bring it to the next IRC meeting. ■

IRC Meeting Schedule

The IRC generally meets on the third Tuesday of each month, from 2-4 p.m., in the Administration Building Board Room. All meetings of the IRC, its program groups, and other committees are open to all faculty, staff, and students. ■

Metro Lines Upgraded

By Darren Loher, Data Communications Specialist (darren@unt.edu)

The UNT metro dialups have been upgraded to 14.4kbps modems! The modems will support all speeds from 2,400bps up to 14,400bps.

The commands used to access machines have not changed. The phone number remains the same: 817-792-4140 (Note: do not dial a 1 before the 817, to avoid long-distance charges) ■

Special Faculty Seminar

Everything you Ever Wanted to Know About Electronic Mail...

A special faculty seminar on Electronic Mail (E-Mail) will be held in ISB 201 on Friday, February 25 from 2-5 p.m. Dr. Philip Baczewski, Assistant Director of ACS, will be the instructor.

This class is designed to address the specific informational needs of faculty E-Mail users on this campus. The format will be a learner-driven discussion providing step-by-step methods for performing various E-mail tasks associated with scholarship, instruction, and academic administration.

A registration form is available at the end of this issue. ■

General Information

1994 Spring Short Courses

Academic Computing Services
University of North Texas
Computing Center

- ❑ **Registration** — Academic Computing Services is offering the following short courses for the 1994 spring semester. Please preregister to attend. You may either fill out the form attached to this document or register on-line via Gopher. If registering via Gopher, the form can be found in the path: UNT Departments, Schools, and Colleges /Computing Center /Short Courses. (Call 565-2324 if you have questions about Gopher.)
- ❑ **Eligibility and Class Size** — Faculty and students have first priority to register for these classes. A maximum of 10 people will be admitted to each of the courses held in ISB 110 and ISB 235. A maximum of 15 people will be admitted to each of the courses held in Chilton 255. *Academic Computing Services reserves the right to cancel any course that has 5 or fewer people registered 3 days before the course is scheduled.*
- ❑ **Hands-on Classes** — All persons registering for hands-on (ISB 110, Chilton 255) HDS, VAX and/or UNIX courses should have current User-IDs for the system to which the course applies. Applications for User-IDs are available in the Computing Center main office (ISB 119). It takes several working days for a User-ID to be activated.

HDS, VAX, and UNIX Courses

- ❶ **Introduction to CMS** — CMS is an interactive operating system employed by academic users to access the Academic HDS/8083 IBM-compatible mainframe computer at UNT. CMS users have access to a variety of programming languages, a sophisticated text editing system, and several statistical analysis packages. CMS users can also submit batch jobs to the OS/MVS system.

Three two-hour sessions, held in the Chilton General Access Lab (Chilton 255):

Date	Time	Instructor
Monday, January 31	3-5 p.m.	James Yarbrough
Tuesday, February 8	3-5 p.m.	Philip Baczewski
Friday, February 18	1-3 p.m.	James Yarbrough

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Computing Courses Offered Through the Personnel Office

The schedule for faculty/staff computing courses offered through the Personnel Office is listed below. Anyone wishing to take a course should contact Personnel at 565-4246 or go to Marquis 128 to pick up a registration form. Registration forms will also be in the back of the monthly *Personnel Newsletter*. All courses will be taught in the Chilton 255 computer lab.

- ❑ **Introduction to Micros & DOS** — January 10, 2-5p.m.
- ❑ **Overheads Using WordPerfect Presentations** — January 11, 9 a.m.-noon.
- ❑ **Introduction to WordPerfect 5.1** — January 12, 2-5 p.m.
- ❑ **Introduction to WordPerfect 5.2/Windows** — January 13, 9 a.m.-noon.
- ❑ **Pegasus Mail** — January 13, 2-5 p.m.
- ❑ **Introduction to Windows 3.1** — January 20, 2-5 p.m.
- ❑ **Overheads Using WordPerfect Presentations** — February 2, 9 a.m.-noon.
- ❑ **Introduction to Micros and DOS** — February 9, 2-5 p.m.
- ❑ **Pegasus Mail** — February 10, 2-5 p.m.
- ❑ **Introduction to WordPerfect 5.2/Windows** — February 16, 2-5 p.m.
- ❑ **Introduction to Windows 3.1** — February 24, 2-5 p.m.
- ❑ **Overheads Using WordPerfect Presentations** — March 2, 9 a.m.-noon.
- ❑ **Pegasus Mail** — March 3, 2-5 p.m.
- ❑ **Introduction to Windows 3.1** — March 10, 2-5 p.m.

Please see Personnel on page 27.

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- ② **Introduction to IBM MVS Job Control Language (JCL)** – This course provides an overview of IBM JCL for users who wish to further their knowledge in this area. It is useful for individuals who plan to run MVS batch jobs (e.g. SAS, SPSS-X) on the HDS IBM-compatible mainframe computer.

A two-hour session held in the Academic Computing Conference Room (ISB 235):

Date	Time	Instructor
Thursday, February 3	3-5 p.m.	George Morrow

- ③ **Introduction to VAX/VMS** – VMS is the interactive operating system used on the Digital Equipment Corporation (DEC) VAX. The VAX supports a variety of applications. The topics covered in this course include gaining access to the VAX through the Local Area Network, logging in and out, changing your password, creating files and directories, creating login command files, using the EDT editor, defining logicals and symbols, and electronic mail.

Two two-hour sessions, held in the Chilton General Access Lab (Chilton 255):

Date	Time	Instructor
Wednesday, February 2	3-5 p.m.	Staff
Tuesday, March 8	1-3 p.m.	Staff

- ④ **Introduction to UNIX** – This course starts with a short discussion of the history and evolution of UNIX covering both the “Berkeley Software Distribution” and “AT&T System V” variants of UNIX. Topics covered will be the basic necessities for using UNIX and use of some of the various utilities available in UNIX.

Two two-hour sessions, held in the Chilton General Access Lab (Chilton 255):

Date	Time	Instructor
Monday, February 7	1-3 p.m.	Staff
Tuesday, March 1	3-5 p.m.	Staff

- ⑤ **Introduction to UNIX for VAX Users** – This course is recommended for individuals who are familiar with VAX/VMS and want to learn how to get around on a UNIX system.

Two two-hour sessions, held in the Chilton General Access Lab (Chilton 255):

Date	Time	Instructor
Friday, February 11	1-3 p.m.	Staff
Tuesday, February 22	3-5 p.m.	Staff

Statistical Package Courses

- ① **Introduction to SAS** – This course is recommended for individuals who plan to incorporate statistical analyses into their research. The basic concepts of the SAS system are covered in this course. **This course or prior knowledge of SAS is a prerequisite for all other SAS courses.**

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- ❑ **Introduction to WordPerfect 5.1** — March 23, 2-5 p.m.
- ❑ **Introduction to WordPerfect 5.2/Windows** — March 24, 2-5 p.m.
- ❑ **Introduction to Micros/DOS** — March 30, 2-5 p.m.
- ❑ **Overheads Using WordPerfect Presentations** — April 5, 9 a.m.-noon.
- ❑ **Pegasus Mail** — April 6, 2-5 p.m.
- ❑ **Introduction to Windows 3.1** — April 7, 2-5 p.m.
- ❑ **Introduction to WordPerfect 5.2/Windows** — April 13, 2-5 p.m.
- ❑ **Introduction to Micros/DOS** — April 14, 2-5 p.m.
- ❑ **Introduction to WordPerfect 5.1** — April 20, 2-5 p.m.
- ❑ **Overheads Using WordPerfect Presentations** — April 26, 9 a.m.-noon.
- ❑ **Introduction to Windows 3.1** — April 27, 2-5 p.m.
- ❑ **Pegasus Mail** — April 28, 2-5 p.m.
- ❑ **Introduction to Micros/DOS** — May 11, 2-5 p.m.
- ❑ **Introduction to WordPerfect 5.1** — May 12, 2-5 p.m.
- ❑ **Introduction to WordPerfect 5.2/Windows** — May 18, 2-5 p.m. ■

LOOK!

Customized Short Courses Available

Faculty members can request “customized” short courses for their classes. Contact ACS to request a course (565-2324, ISB 119). ■



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Two two-hour sessions, held in the Academic Computing Conference Room (ISB 235):

Date	Time	Instructor
Friday, February 4	2-4 p.m.	Panu Sittiwong
Thursday, February 17	3-5 p.m.	Phanit Laosirirat

- ② **Introduction to SAS for CMS, DOS & UNIX** – This course is recommended for individuals who plan to use SAS on the academic HDS IBM-compatible mainframe, DOS or Sol. Topics covered include creating SAS programs, reading data into SAS programs, saving SAS datasets, importing/exporting SAS datasets to and from other SAS systems, and preparing and submitting SAS jobs to OS/MVS. SAS is used interactively in this course. **Prior knowledge of the SAS command language or attendance in the Intro. to SAS course is required.**

Two two-hour sessions will be held in the Chilton General Access Lab (Chilton 255):

Date	Time	Instructor
Monday, February 14	3-5 p.m.	Panu Sittiwong
Tuesday, March 29	10 a.m.-Noon	Panu Sittiwong

- ③ **Introduction to SAS on Windows, OS/2, and X-Window** – This course is recommended for individuals who plan to use SAS on a GUI interface. Topics covered include creating SAS programs, reading data into SAS programs, saving SAS datasets, and importing/exporting SAS datasets to and from other SAS systems. This class will also utilize the SAS menus under the X Window System. **Prior knowledge of the SAS command language or attendance in the Intro. to SAS course is required.**

Two two-hour sessions will be held in the Science Library (ACS General Access Lab, ISB 110):

Date	Time	Instructor
Wednesday, February 16	2-4 p.m.	Panu Sittiwong
Thursday, March 24	10 a.m.-Noon	Panu Sittiwong

- ④ **Introduction to SPSS** – This course is recommended for individuals who plan to incorporate statistical analyses into their research and want to use SPSS on the academic HDS IBM-compatible mainframe. It emphasizes using SPSS from the CMS operating system. Topics covered include creating SPSS programs, reading data into SPSS programs, saving SPSS datasets on a minidisk, importing/exporting SPSS datasets to and from other SPSS systems, and preparing and submitting SPSS jobs to OS/MVS. SPSS is used interactively in this course.

Two three-hour sessions to be held in the Science Library (ACS General Access Lab, ISB 110):

Date	Time	Instructor
Thursday, February 10	1-4 p.m.	James Yarbrough
Tuesday, February 15	2-5 p.m.	James Yarbrough

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WP User's Group 1994 Schedule

By Sandy Franklin Burke, Office Automation Specialist (burke@cc1.unt.edu)

All WordPerfect User's Group meetings continue to be held on Fridays in Chilton 255. The User's Group meetings for January and February 1994 will be led by the WP Representative, Nikole McBride.

The January meeting will be on the differences between WP 5.1 and 6.0 for DOS. Come equipped with questions for WP, on features as well as equipment needs to run the latest software. The February meeting will be on the differences between WP 5.2 and 6.0 for Windows. Both should be interesting.

Following is the schedule of meetings for the spring:

- ☐ January 21, 3-4 p.m.
- ☐ February 18, 3-4 p.m.
- ☐ March 25, 3-4 p.m.
- ☐ April 22, 3-4 p.m.
- ☐ May 20, 3-4 p.m. ■

Change in VAX/UNIX Operations Staff Weekend Hours

By Marc St.-Gil, UNIX/VAX Systems Manager (mstgil@unt.edu)

As of January 1, 1994, there is no longer anyone on duty on weekends at the 565-4161 operations number. Support calls can still be placed by calling the 565-2324 Support Services number and leaving voice mail or pushing 03 during the message to be forwarded to someone who will have a staff member paged to respond to your call. You can also send mail to the operator account or to Support Services at: helpdesk@unt.edu ■

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- ⑤ **Introduction to SPSS PC +** — This course covers the basics of using SPSS PC+, Version 4.0.1, for IBM and compatible PCs. Topics covered include using the menu and help interfaces in REVIEW, loading files, selecting variables and running statistical analyses. Emphasis will be placed on building files for execution interactively. **Prior knowledge of the SPSS command language or attendance in the Intro. to SPSS course is required.**

A two-hour session, held in the Science Library (ACS General Access Lab, ISB 110):

Date	Time	Instructor
Tuesday, February 22	2-4 p.m.	James Yarbrough

- ⑥ **Introduction to SPSS on Windows** — This course is recommended for individuals who plan to use SPSS on a PC using Windows. **Prior knowledge of the SPSS command language or attendance in the Intro. to SPSS course is required.**

A two-hour session will be held in the Chilton General Access Lab (Chilton 255):

Date	Time	Instructor
Friday, February 25	1-3 p.m.	Panu Sittiwong

Wide Area Network & Information Systems Courses

- ① **Introduction to Electronic Mail and Discussion Groups on CMS** — This course will cover the basics of using CMS MAIL to send and receive electronic mail to both the Internet and BITNET. The use of electronic mailing lists including BITNET LISTSERV will also be discussed. **Prior knowledge of CMS is required.**

A two-hour session, held in the Academic Computing Conference Room (ISB 235):

Date	Time	Instructor
Wednesday, February 9	3-5 p.m.	Philip Baczewski

- ② **Introduction to Electronic Mail and Discussion Groups on UNIX** — This course will cover the basics of using elm or pine to send and receive electronic mail to both the Internet and BITNET. The use of electronic mailing lists including BITNET LISTSERV will be discussed. Using USENET newsgroups via the nn News program on UNIX will also be explored. **Prior knowledge of UNIX is required.**

A two-hour session, held in the Academic Computing Conference Room (ISB 235):

Date	Time	Instructor
Wednesday, February 23	3-5 p.m.	Staff

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Staff Activities

Employees Honored

- **The Payroll/Personnel Data Systems Team** was recognized as an outstanding department at the Chancellor's Staff Sack Lunch on November 3. Team members are John Hooper, Rong Wang, Margaret Ambuel, Meng Long Wong, and Lek Thannavibulpol.
- **Barbara Borgalio**, a programmer on the Fiscal Data Systems Team, received a 5 year service award in October.
- **Dan Strange**, a programmer/analyst on the Fiscal Data Systems Team, also received a 5 year service award in October.

Publications and Presentations

- **Eriq Neale**, General Access Lab Manager, had a book review published in the Fall 1993 volume of *Library Software Review*. The *Visual Guide to Visual Basic* by Richard Mansfield was reviewed on page 76 of the periodical.
Eriq's much awaited musical offering, "Sacrificing Toasters to Alien Poets," is now available on tape. If you are interested in purchasing a copy of this *Green Chili Burp and the Aftertaste* tape at a very reasonable price, contact Eriq (neale@unt.edu, 565-4808).
- **Dr. Paul Gandel**, Senior Director of Academic Computing, presented a paper at the ACM SIGUCCS Conference in San Diego, CA (Nov. 7-10). The paper, "Providing User Services with Cross-Organizational Cooperation," was co-authored with **Bill Buntain**, Director of Network and Microcomputer Services (this was reported erroneously in our last issue).

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- ③ **Introduction to Internet Tools and Techniques** - The Internet is a collection of related computer networks that link almost a million computers throughout the world. This course will cover file transfer, remote login, use of on-line library catalogs at other universities, Archie, HYTELNET, Gopher, and many other Internet topics **except** electronic mail. **Prior knowledge of at least one of the following interactive operating systems is required: CMS, UNIX, MS-DOS.**

Two one and one half-hour sessions, held in the Computing Center Conference Room (ISB 235):

Date	Time	Instructor
Thursday, February 24	3:30-5 p.m.	Staff
Wednesday, March 9	3:30-5 p.m.	Staff

- ④ **Introduction to Gopher, a campus-wide information system** - This course will cover the basics of using Gopher, from various hosts and microcomputers on campus, to access a vast array of information about UNT, other universities, and the world.

Three one and one-half-hour sessions, held in the Academic Computing Conference Room (ISB 235):

Date	Time	Instructor
Friday, January 28	1-2:30 p.m.	Mark Thacker
Thursday, February 17	1-2:30 p.m.	Mark Thacker
Monday, March 21	3:30-5 p.m.	Mark Thacker

- ⑤ **Introduction to PC E-Mail and Discussion Groups** - This course covers the basics of using electronic mail facilities on the PC, such as Pegasus Mail (Pmail), to communicate with others on the Internet and BITNET. Accessing USENET Newsgroups via Trumpet will also be covered.

A two and one-half-hour session, held in the Academic Computing Conference Room (ISB 235):

Date	Time	Instructor
Monday, February 21	2:30-5 p.m.	Eriq Neale

- ⑥ **Introduction to Internet Tools and Techniques on the Mac** - This course covers Internet tools and techniques that are unique to the Macintosh environment. **Prior experience using a Macintosh is required.**

A one and one-half-hour session, held in the Science Library (ACS General Access Lab, ISB 110):

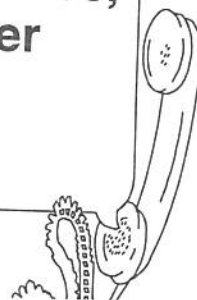
Date	Time	Instructor
Monday, February 28	3:30-5 p.m.	Sean McMains

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Dr. Gandel along with Dr. Ray von Dran, Dean of the School of Library and Information Sciences, gave a poster session on "A Federated Approach to Information Resource Management" at the CAUSE conference December 7-10. The theme of this year's conference was "Managing Information Technology as a Catalyst of Change." It was held in San Diego, CA ■

Calls for Papers, Conferences, and Other Items of Interest



We have received the following "calls" and announcements from various organizations.

Summer Programs

- NSF Summer Research Program (SRP) for Women in Science, Mathematics & Engineering — The University of Missouri-Columbia and the National Science Foundation are offering an eight-week internship for female undergraduates interested in careers in basic and applied sciences, mathematics, and engineering. Interns will receive a \$1,500 stipend; tuition, room and board; transportation to Columbia; research supplies; professional society membership; and expenses for attending one regional or local scientific meeting. For further information:

Please see **Calls** on page 31.

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Microcomputer Courses

- ① **Introduction to Macintosh for Students** - This course is recommended for students who want to learn about Apple Macintosh computers.

A two-hour session, held in the Science Library (ACS General Access Lab, ISB 110):

Date	Time	Instructor
Thursday, January 27	2-5 p.m.	Sean McMains

- ② **Introduction to WordPerfect 5.1 (DOS)** - Anyone who wishes to use a word processing system to produce class papers and projects is encouraged to take this course. **Prior knowledge of basic DOS commands is required.**

A three-hour session, held in the Chilton General Access Lab (Chilton 255):

Date	Time	Instructor
Wednesday, January 26	2-5 p.m.	Sean McMains

- ③ **Introduction to Pegasus Mail** - This course is recommended for people, especially faculty and staff, who want to learn about using Pegasus Mail (Pmail) to communicate with others on campus and via the Internet.

Two three-hour sessions, held in the Chilton General Access Lab (Chilton 255):

Date	Time	Instructor
Monday, January 24	2-5 p.m.	Mike Murdock
Thursday, March 31	2-5 p.m.	Mike Murdock

- ④ **Don't Get Stoned: Computer Viruses and You** - This course is recommended for anyone who uses a microcomputer and wants to protect their software and data against viral infections.

A two-hour session, held in the Academic Computing Conference Room (ISB 235):

Date	Time	Instructor
Wednesday, March 30	3-5 p.m.	Eriq Neale

- ⑤ **Introduction to Windows 3.1** - This course provides an introduction to the Windows 3.1 operating environment. Emphasis will be placed on using the mouse, control panel, and file manager.

A three-hour session, held in the Chilton General Access Lab (Chilton 255):

Date	Time	Instructor
Friday, March 4	2-5 p.m.	Sean McMains

- ⑥ **Introduction to Word Perfect Presentations (DOS)** - An introduction to the WordPerfect DOS Presentations Product, formerly DrawPerfect. Students will create an organization chart, bullet chart and a data chart.

A three-hour session, held in the Chilton General Access Lab (Chilton 255):

Date	Time	Instructor
Wednesday, February 9	9:30 a.m.-Noon	Sandy Burke

Calls continued from page 30.

ation contact Dr. Vicki Curby, SRP Program Director, 210 Jesse Hall, University of Missouri-Columbia, Columbia, MO 65211. Phone: 314-882-0084; FAX: 314-884-5434; E-Mail: lcivicki@mizzou1.missouri.edu

Call for Presentations

- ❑ **Symposium on Educational Applications of Technology for Persons with Sensory Disabilities, Rochester, New York, July 20-22, 1994.** — Formal and poster presentations are being accepted through February 28. Contact E. William Clymer, Coordinator, Rochester Institute of Technology, Lyndon Baines Johnson Building, 52 Lomb Memorial Drive, Rochester, NY 14623-5604. Phone: 716-475-6906; FAX: 716-475-6290; E-Mail: techsym@ritvax.isc.rit.edu

Conferences

- ❑ **EDUCOM '94, October 31-November 3, 1994, San Antonio Convention Center, San Antonio, Texas** — For more information contact EDUCOM at 112 16th Street NW, Suite 600, Washington, DC 20036. FAX: 202-872-4318; E-Mail: educom94@educom.edu ■

Support Services Gets E-Mail

Now you can contact Support Services via electronic mail. Just send a message to one of the following addresses:

- ❑ **HELPDESK (WPO Mail)**
 ❑ **#CC1/HELPDESK (P-Mail)**
 ❑ **HELPDESK@UNT.EDU (the Internet)**

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Computing Center Short Course Registration Form

Please complete this form and return it **AS SOON AS POSSIBLE** if you wish to attend any of the short courses listed below. You may also register on-line via Gopher or over the phone by calling (817) 565-2324.

NAME: _____ FACULTY ____ STAFF ____ STUDENT ____
 DEPT: _____ UNDERGRADUATE ____ GRADUATE ____
 PHONE: _____ MAILING ADDRESS: _____
 SSN: _____ USER-ID: _____

✓	Course	Date	Time	Location
	Faculty E-Mail Seminar	Friday, February 25	2-5 p.m.	ISB 201
	Introduction to CMS	Monday, January 31	3-5 p.m.	Chilton 255
	Introduction to CMS	Tuesday, February 8	3-5 p.m.	Chilton 255
	Introduction to CMS	Friday, February 18	1-3 p.m.	Chilton 255
	Introduction to JCL	Thursday, February 3	3-5 p.m.	ISB 235
	Introduction to VAX/VMS	Wednesday, February 2	3-5 p.m.	Chilton 255
	Introduction to VAX/VMS	Tuesday, March 8	1-3 p.m.	Chilton 255
	Introduction to UNIX	Monday, February 7	1-3 p.m.	Chilton 255
	Introduction to UNIX	Tuesday, March 1	3-5 p.m.	Chilton 255
	Introduction to UNIX for VAX Users	Friday, February 11	1-3 p.m.	Chilton 255
	Introduction to UNIX for VAX Users	Tuesday, March 22	3-5 p.m.	Chilton 255
	Introduction to SAS	Friday, February 4	2-4 p.m.	ISB 235
	Introduction to SAS	Thursday, February 17	3-5 p.m.	ISB 235
	Introduction to SAS: CMS, DOS & UNIX	Monday, February 14	3-5 p.m.	Chilton 255
	Introduction to SAS: CMS, DOS & UNIX	Tuesday, March 29	10 a.m.-Noon	Chilton 255
	Introduction to SAS: Windows, OS/2 & X-Window	Wednesday, February 16	2-4 p.m.	ISB 110
	Introduction to SAS: Windows, OS/2 & X-Window	Thursday, March 24	10 a.m.-Noon	ISB 110
	Introduction to SPSS	Thursday, February 10	1-4 p.m.	ISB 110
	Introduction to SPSS	Tuesday, February 15	2-5 p.m.	ISB 110
	Introduction to SPSS PC+	Tuesday, February 22	2-4 p.m.	ISB 110
	Introduction to SPSS on Windows	Friday, February 25	1-3 p.m.	Chilton 255
	Introduction to E-Mail & More on CMS	Wednesday, February 9	3-5 p.m.	ISB 235
	Introduction to E-Mail & More on UNIX	Wednesday, February 23	3-5 p.m.	ISB 235
	Introduction to Internet Tools & Techniques	Thursday, February 24	3:30-5 p.m.	ISB 235
	Introduction to Internet Tools & Techniques	Wednesday, March 9	3:30-5 p.m.	ISB 235
	Introduction to Gopher	Friday, January 28	1-2:30 p.m.	ISB 235
	Introduction to Gopher	Thursday, February 17	1-2:30 p.m.	ISB 235
	Introduction to Gopher	Monday, March 21	3:30-5 p.m.	ISB 235
	Introduction to PC E-Mail & Discussion Groups	Monday, February 21	2:30-5 p.m.	ISB 235
	Introduction to Internet Tools & Techniques on the Mac	Monday, February 28	3:30-5 p.m.	ISB 110

✓	Course	Date	Time	Location
	Introduction to Macintosh for Students	Thursday, January 27	2-5 p.m.	ISB 110
	Introduction to WordPerfect 5.1 (DOS)	Wednesday, January 26	2-5 p.m.	Chilton 255
	Introduction to Pegasus Mail	Monday, January 24	2-5 p.m.	Chilton 255
	Introduction to Pegasus Mail	Thursday, March 31	2-5 p.m.	Chilton 255
	Don't Get Stoned: Computer Viruses and You	Wednesday, March 30	3-5 p.m.	ISB 235
	Introduction to Windows 3.1	Friday, March 4	2-5 p.m.	Chilton 255
	Introduction to WordPerfect Presentations (DOS)	Wednesday, February 9	9:30 a.m.-Noon	Chilton 255

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